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NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY
FINAL PROJECT IMPACT REPORT/ FINAL ENVIRONMENTAL IMPACT REPORT
EOEA #8776

February 15, 1994

Submitted To:

Boston Redevelopment Authority
City Hall
1 City Hall Square
Boston, Massachusetts 02201

and

Executive Office of Environmental Affairs
MEPA Unit
100 Cambridge Street
Boston, Massachusetts 02202

Submitted By:

NEW ENGLAND DEACONESS HOSPITAL
185 Pilgrim Road
Boston, Massachusetts 02115

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New England Deaconess Hospital

Research Facility
169-171 Pilgrim Road
Boston, Massachusetts

Final Project Impact Report/
Final Environmental Impact Report

EOEA No. 8776

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CIRCULATION LIST

	Address	No. of Copies
1.	Trudy Coxe, Secretary Executive Office of Environmental Affairs 100 Cambridge Street - 20th Floor Boston, Massachusetts 02202 Attention: MEPA Unit, EOEA No. 8776	3
2.	Paul McCann, Acting Director Boston Redevelopment Authority One City Hall Square - 9th Floor Boston, Massachusetts 02201	1
3.	Beverley Johnson, Assistant Director for Institutional Planning and Development Boston Redevelopment Authority One City Hall Square - 9th Floor Boston, Massachusetts 02201	25
4.	Daniel Greenbaum, Commissioner Department of Environmental Protection One Winter Street Boston, Massachusetts 02108	1
5.	Department of Environmental Protection Division of Water Pollution Control One Winter Street Boston, Massachusetts 02108	1
6.	Christine Kirby Department of Environmental Protection Division of Air Quality Control One Winter Street Boston, Massachusetts 02108	1
7.	Department of Environmental Protection Division of Hazardous Material One Winter Street Boston, Massachusetts 02108	1

Address	No. of Copies
8. Regional Environmental Engineer Department of Environmental Protection Metropolitan Boston/Northeast Regional Office 10 Commerce Way Woburn, Massachusetts 01801	1
9. Department of Environmental Protection Division of Water Pollution Control Metropolitan Boston/Northeast Regional Office 10 Commerce Way Woburn, Massachusetts 01801	1
10. Department of Environmental Protection Division of Air Quality Control Metropolitan Boston/Northeast Regional Office 10 Commerce Way Woburn, Massachusetts 01801	1
11. Executive Office of Communities & Development State Clearinghouse 100 Cambridge Street - 9th Floor Boston, Massachusetts 02202	1
12. Judith B. McDonough, Executive Director State Historic Preservation Officer Massachusetts Historical Commission 80 Boylston Street Boston, Massachusetts 02116	1
13. Environmental Officer Metropolitan Area Planning Council 60 Temple Place Boston, Massachusetts 02111	1
14. Environmental Officer Massachusetts Highway Department - District 8 400 D Street Boston, Massachusetts 02210	1

	Address	No. of Copies
15.	Environmental Officer Massachusetts Water Resources Authority 100 First Avenue Charlestown Navy Yard Charlestown, Massachusetts 02129	1
16.	Environmental Officer Massachusetts Highway Department 10 Park Plaza - Room 4260 Boston, Massachusetts 02202	1
17.	Environmental Officer Massachusetts Bay Transportation Authority 10 Park Plaza - 6th Floor Boston, Massachusetts 02116-3966	1
18.	Environmental Officer Office of Coastal Zone Management Executive Office of Environmental Affairs 100 Cambridge Street Boston, Massachusetts 02202	1
19.	Commissioner Boston Transportation Department One City Hall Square Boston, Massachusetts 02201	1
20.	Lorraine M. Downey, Director Boston Environment Department One City Hall Square Boston, Massachusetts 02201	1
21.	Boston Conservation Commission Boston Environment Department One City Hall Square Boston, Massachusetts 02201	1

Address		**No. of Copies**
22.	John Sullivan, Jr., P.E., Chief Engineer Boston Water & Sewer Commission 425 Summer Street Boston, Massachusetts	1
23.	Environmental Officer Department of Labor and Industries 100 Cambridge Street Boston, Massachusetts 02202	1
24.	Honorable Kevin Fitzgerald State House of Representatives State House Boston, Massachusetts 02133	1
25.	Richard M. Shea, Jr. MASCO 375 Longwood Avenue Boston, Massachusetts 02215	1
26.	Kelly Farquharson Mission Hill PZAC 17 Wigglesworth Street Boston, Massachusetts 02120	1
27.	Michael Herlihy Mission Hill PZAC 12 Cherokee Street Boston, Massachusetts 02120	
28.	State Senator Dianne Wilkerson State Senate State House Room 506 Boston, Massachusetts 02133	1

I. FPIR/FEIR REQUIREMENTS AND SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION

I. FPIR/FEIR REQUIREMENTS AND SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION

1.0 FPIR/FEIR REQUIREMENTS

This Final Project Impact Report/Final Environmental Impact Report (FPIR/FEIR) on New England Deaconess Hospital's Research Facility Project is being submitted to address the Boston Redevelopment Authority's (BRA) Preliminary Adequacy Determination (PAD) on the DPIR dated February 11, 1994, and the Secretary's Certificate on the DEIR dated December 16, 1993.

The BRA's PAD requests additional information needed for its review pursuant to Article 31 including:

- Lot size information.
- Sources of financing.
- Information on relocation of maintenance facilities.
- Parking, construction impacts, pedestrian and bicycle circulation.
- Detailing of parking mitigation measures.
- Shadow impacts from proposed cooling towers on top of the Pilgrim Road Garage for December 21 at 3:00 PM, March 21 at 3:00 PM and June 21 at 6:00 PM.

The Secretary's Certificate requests additional information including the following:

- Selection of trip generation rates for Project and comparisons with EOEA #9428 and 9452 trip generation rates.
- Copy of Land Use Code (760) graphs and equations.
- Average annual weekday traffic volumes generated by the Project for 24-hour period.
- Reuse of vacated research space and additional vehicle trips generated by this space.
- Commitments to improved bicycle facilities and transportation demand management program designed to reduce single occupancy vehicle use.

- Reasons for senior management exemption from parking restrictions imposed on other employees.

- Identification of trace amounts of chemical or biological wastes to be discharged into sanitary system and air ventilation system.

- Detailing of proposed open space.

- Identification of specific park land vegetation impacted from increased autumnal equinox and winter solstice shadows.

- Discussion of feasibility of a circulatory shuttle bus in the LMA and other infrastructure improvements.

- Draft Section 61 Finding listing mitigation, timing of mitigation, and responsibility for mitigation.

2.0 RESEARCH FACILITY PROJECT

The Research Facility project (the Project) will be located on the campus of New England Deaconess Hospital, a not-for-profit tertiary level (specializing in highly complex patient care) teaching and research hospital. New England Deaconess Hospital provides state-of-the-art medical care and is one of the leading centers of medical research in the country. It employs over 3,000 people and occupies approximately 1.2 million gross square feet of building and parking area.

The Project consists of an 11-story building containing approximately 295,000 square feet, and will be located on the existing site of the Hospital's Maintenance Building[*] at the corner of Pilgrim Road and Crossover Street and extending to the site of the Hospital's temporary buildings along Autumn Street (see Figure I-1 - Campus Plan). Plans for the Project include the demolition of the Maintenance Building and temporary structures on the site. The maintenance operation will be relocated to the basement of the Deaconess Building, and the day-care facility will be relocated to the Hospital-owned building at 21 Autumn Street (formerly known as "306 The Riverway").

The Project will be connected to the abutting Deaconess Building, and will include a bridge connecting the facility to the Pilgrim Road Garage, as well as a bridge connecting the garage to the Kennedy Building. Cooling towers for

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[*] Although referred to as the "Maintenance and Laundry Building" in the DPIR/DEIR, the laundry use was discontinued some time ago and was incorrectly identified as such in the earlier report.

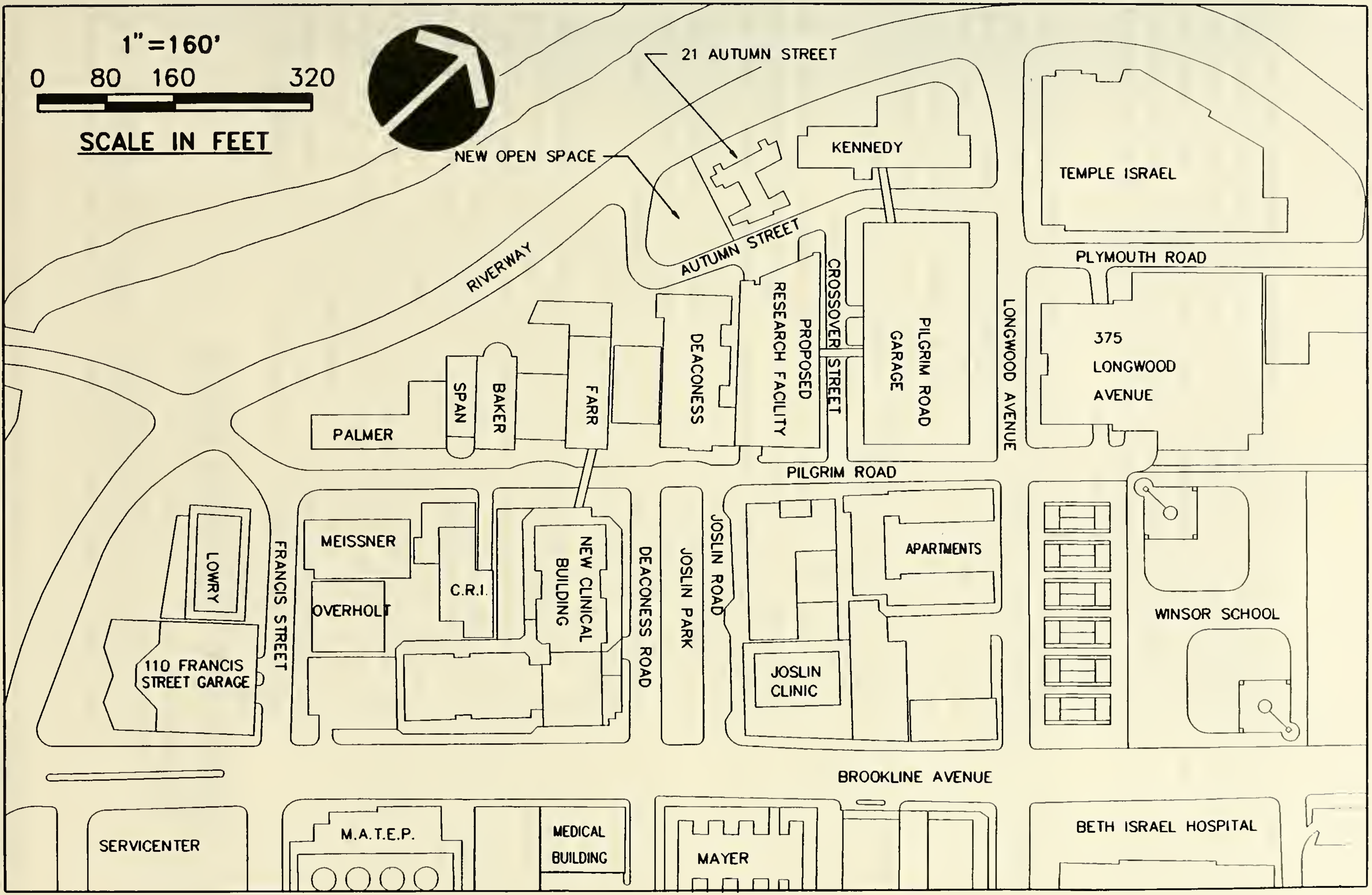

FIGURE I-1
CAMPUS SITE PLAN
NEW ENGLAND DEACONESS HOSPITAL

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the Project will be located on top of a portion of the adjacent Pilgrim Road Garage as part of the Project. The Project will also include minor infill additions to the abutting Deaconess Building which are necessary to coherently relate and connect this building to the Research Facility. Truck loading and service access are incorporated into the Project with access from Autumn Street. Two truck loading docks and a dumpster dock will be in an enclosed area on the first floor of the Project.

A new open space will be created as part of the Project on a site adjacent to 21 Autumn Street. This site, currently occupied by the temporary MRI building which will be demolished after completion of the Hospital's new Clinical Facility, will be turned into an open space for both passive and active recreational use to serve the needs of the Hospital. Access for non-Hospital use by the public will be provided from the Riverway. The creation of this permanent open space will increase Riverway Park, and will serve to draw the open space of the Park into the Hospital campus.

The benefits to the City from the Project are significant. In addition to the strengthening of New England Deaconess Hospital's research capabilities, the Project will add 75 new permanent jobs over a period of several years and approximately 300 construction jobs over a 2½-year period. The Hospital will make linkage payments in accordance with Articles 26A and 26B of the Boston Zoning Code (and described in detail in Section II-4.2) and will continue to provide substantial funds for AIDS and other critical health care programs in the City of Boston and Metropolitan area.

The Hospital recognizes its responsibility to continue to provide traffic and parking management programs, and mitigation plans and incentives to reduce traffic congestion on campus and within the Longwood Medical Area (LMA). The Hospital, in close coordination with the Medical Academic and Scientific Community Organization (MASCO), has adopted a comprehensive program to reduce the amount of traffic by promoting aggressive transportation policies. These demand management measures include transit subsidies, educational programs, ride sharing, improved pedestrian and bicycle facilities, off-site parking, flexible work hours and other parking disincentives including a strong parking policy establishing that, except for medical staff, second-shift nurses, and senior management, new employees will not be given spaces in on-campus and LMA garages.

3.0 SUMMARY OF ENVIRONMENTAL EFFECTS

3.1 Transportation

The transportation effects of the Project are modest. The Project is, for the most part, a consolidation and relocation of existing Hospital research activities resulting in a minimal increase in overall peak-hour person trips to the Hospital. No additional Deaconess Hospital parking will be constructed on the Campus or within the LMA. The Hospital's already implemented Parking Policy prohibits on-campus parking by most employees. In an effort to further reduce trips to the Hospital, the Hospital will continue to enhance its Transportation Demand Management Program as summarized in Section 4.1 of this Chapter.

Construction of the Project will not lead to a decrease in parking spaces to serve construction workers. These workers will be required to either park off-campus and be shuttled to the construction site or arrive by public transportation. The Hospital will make available its off-site parking and shuttle bus service.

The Project should be beneficial as far as improvements in both pedestrian circulation through the campus and in enhancing bicycle use. The Hospital continues to put in place pedestrian improvements as illustrated in Figure VI.3-2 in Chapter VI. In addition, bicycle racks are provided at the Pilgrim Road Garage and the Hospital has agreed to provide access to lockers and shower facilities for those employees choosing to commute by bicycle.

3.2 Pedestrian Level Winds

A qualitative assessment of pedestrian level winds was conducted in the DPIR/DEIR to determine the effect of adding the Project to existing conditions, which include the soon to be completed Hospital Clinical Facility and Joslin Research and Clinical Facility expansion. No pedestrian area in or near the site appears to have winds that exceed the BRA effective gust guideline wind speed of 31 mph more than once in 100 hours either for existing or build conditions. All pedestrian level winds are within Melbourne Categories 3, 4, or 5. No pedestrian area has winds in Melbourne Category 2. The winds at all entrances appear to be acceptable with the Project in place, thereby allowing pedestrian ways to remain suitable for their intended use. The DPIR/DEIR qualitative assessment was sufficient to satisfy the BRA's scoping requirement.

3.3 Shadow

As presented in the DPIR/DEIR, the major areas impacted by shadows created by the Project are portions of Autumn Street and Crossover Street. Under current conditions these areas are often already in shadows from existing buildings. Joslin Park, an important nearby public open space, is not expected to be impacted at all by Project shadows.

Riverway Park will only be minimally affected by new shadows between 9:00 AM and 12:00 Noon during the winter solstice and autumnal equinox. The vegetation in the park is comprised of hardy species, the dominant species being red oaks and beech trees. During the season and time period of the additional shading, the plants are in their dormant stage and are not expected to be adversely affected by the new shadow from the Project.

In response to the BRA's PAD, additional shadows from the cooling towers occupying a portion of the rooftop of the Pilgrim Road Garage were evaluated. No additional shadows are expected to be cast from the cooling towers onto Autumn Street, Pilgrim Road, Joslin Park or Riverway Park. Additional shadows from the cooling towers will only slightly increase the existing shadows on the Longwood Avenue facade and roof of the 375 Longwood Avenue building during the winter solstice and the vernal equinox.

3.4 Daylight

The DPIR/DEIR daylight analysis reveals that the Project will result in daylight obstruction values typical of developed areas in general, and the LMA in particular. While the Project will lead to increased daylight obstruction over existing conditions, the increases are not expected to impact pedestrian use in the area.

In response to the BRA's PAD, additional evaluations were conducted to determine the extent of changes to daylight obstruction from an increased building setback along Pilgrim Road and a reduction in building height. With these alternatives, daylight obstruction values showed slight improvement over the preferred option.

3.5 Solar Glare

The DPIR/DEIR determined that the materials used for the Project will be compatible with the materials used for surrounding buildings. A combination of brick, granite, and glass will be the primary materials, similar to other buildings along the west side of Pilgrim Road. Because of the use of these materials, the DPIR/DEIR found that the Project is not anticipated to have solar glare impacts on the surrounding buildings, pedestrian areas or roadways. The DPIR/DEIR evaluation was considered sufficient to satisfy the scoping requirements.

3.6 Air Quality

An air quality analysis was conducted for the DPIR/DEIR to evaluate mobile source emissions and related carbon monoxide (CO) concentrations in the area of the Project. This microscale analysis concentrated on the sensitive receptors around the most congested intersections near the Project, which were compared to ambient air quality standards established by the Federal Clean Air Act and the Commonwealth of Massachusetts.

The results of the microscale analysis demonstrated that ambient air quality standards for CO will be maintained in the future following construction of the Project. Because of the Hospital's parking management policy which will restrict on-campus parking associated with the Research Facility, the Project will not affect future traffic volumes or air quality. Similarly, an alternative scheme studied in the DPIR/DEIR with a reduction of two floors (from 11 to 9 floors) did not alter the air quality results.

Laboratory venting of exhaust and fume hoods, as discussed in the DPIR/DEIR, will be at roof level to provide sufficient dilution and to direct emissions away from pedestrians. Although the Project's laboratory space has not been entirely defined, typical emissions include trace amounts of organic solvents including alcohols. These trace amounts will be below limits established by the Department of Environmental Protection, Division of Air Quality Control Regulations, under 310 CMR 7.02. Because of the relatively small quantities of chemicals used in a research laboratory and the intermittent use of fume hoods, most laboratory ventilation will not generally require special filtration or scrubbing.

3.7 Geotechnical

As discussed in the DPIR/DEIR, the construction of the below-grade levels of the Project will result in some ground movements. Construction procedures proposed will, however, control ground movements to within acceptable limits.

Adjacent structures and utilities are supported on spread footings, mats, piles, or caissons which bear on or in the marine deposits or glacial till. These structures may undergo minor movements as a result of ground movements associated with the anticipated below-grade construction. However, the cause-effect relationship of ground movements is very complex, and ground movement during excavation does not necessarily result in movement of adjacent structures.

The construction of the Project may require temporary dewatering to facilitate excavation and foundation construction in-the-dry. This dewatering would occur within the site and only required during construction of below-grade areas. Therefore, the impact to area groundwater levels should be negligible.

3.8 Solid and Hazardous Waste

Based on the Phase 1 limited environmental site assessment for the Project site conducted in September and October of 1991, and discussed in the DPIR/DEIR, it was concluded that, within the limits of the analytical program, there was no apparent evidence of groundwater contamination or soil contamination above regulated levels. The site assessment report was provided to the BRA under separate cover, and is available for review upon request. Relevant tables and figures from the report are contained in Appendix I.

The DPIR/DEIR estimated that during the demolition phase approximately 240 to 360 cubic yards per day of demolition waste, consisting of concrete, masonry, wood, steel, roofing materials, interior partitioning, piping, wiring, and flooring materials will be removed. Upon Project occupancy, the facility will generate solid waste, biohazardous waste, radioactive waste and hazardous chemical waste. All waste will be disposed of on a regular basis and in compliance with applicable regulations.

The Hospital will take an active role with regard to the reprocessing and recycling of demolition waste. The demolition disposal contract will include specific requirements that will ensure that demolition procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials.

3.9 Water Quality and Resources

As described in the DPIR/DEIR, the Project is outside of the 100-year flood plain. In addition, the Muddy River is more than 400 feet away from the site and outside the 100-foot discretionary buffer zone associated with wetland resources. In addition, the site is currently fully built up or paved with existing buildings. As a result, the Project will not result in changes to stormwater runoff volumes or quality. In fact, with construction of the Project, the quality of storm water runoff should improve due to improved controls in the parking areas of the adjacent Pilgrim Road Garage.

No chemical or biological waste will be discharged into the sewer system, except for trace amounts. As a permitted sewer user under the Hospital's campus permit, the Project will be subject to, and will comply with, stringent MWRA regulations on wastewater discharge quality which includes regulating trace pollutants from the Project, which is more fully described in Chapter V, Section 3.4 and Appendix H.

3.10 Noise

The Hospital has made a significant commitment to noise control in the design of the Project. Noise emitted from each source was modeled at sensitive receptor points in the DPIR/DEIR. Results of the analysis were provided in Tables V.8-3 through V.8-8 of the DPIR/DEIR. These tables provide the expected noise level from individual sources at each receptor as well as the combined noise level of all modeled facility noise sources. It is believed that the estimates of Project noise at each modeled receptor are conservative and represent a worst case scenario. Therefore, actual Project noise levels at each of the community sensitive receptors are expected to be lower than predicted by the noise modeling. The results indicate that the Project will comply with the Boston Noise Ordinance criteria at all modeled locations.

The results of the noise analysis in the DPIR/DEIR were considered sufficient by the MEPA Office to satisfy the scoping requirement. However, the BRA's PAD requested clarification of the noise study methodology used in the DPIR/DEIR, and identification of specific locations and elevations modeled. This information is presented in Chapter V, Section 4.0 Noise.

3.11 Construction Impacts

As described in the DPIR/DEIR, the construction period for the Project is expected to last approximately 30 months. Typical construction hours will be from 7:00 AM to 3:30 PM Monday through Friday.

The proposed staging plan will be designed to isolate the construction while providing safe access for pedestrians and automobiles during normal day-to-day activity and emergencies.

Construction noise will comply with the City of Boston regulations. The impact of the construction noise is limited because the noise will be temporary and will occur during the day time.

A minimal dewatering effort is anticipated to complete the excavation in the dry. This dewatering would occur within the site during below-grade construction, therefore the impact to area groundwater levels should be negligible.

To reduce vehicle trips to and from the construction site, no construction worker parking will be permitted at the site during Project construction, and all workers will be strongly encouraged to use public transportation. The Hospital will also make available its off-site parking and shuttle bus service to construction workers. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the Project site each day.

3.12 Rodent Control

Based on discussions with the City's Inspectional Services Department, there are no known rodent problems in the Longwood Medical Area.

3.13 Historic Resources

Based on a review of Massachusetts Historical Commission (MHC) files, there is one historic resource listed on the National Register of Historic Places located within an one-eighth mile radius of the site: Olmsted Park which includes the Riverway (or Riverway Park) and the Muddy River.

A review of the Boston Landmarks Commission files led to identification of the Hospital's Palmer Memorial Building and the Deaconess Building (the original hospital) as being potential historic resources on the Hospital's campus.

Based on an analysis of the Project's design as it may impact these historic resources, it was determined that the Project's height, scale and massing are consistent with surrounding structures, and that building materials to be used will be sensitive to the original Deaconess Building, Palmer Memorial Building and other nearby structures.

Based on additional research conducted at MHC files, there are no known archaeological resources within one-half mile of the site. The Project is, therefore, not expected to impact any known archaeological resources.

3.14 Infrastructure

The infrastructure analysis presented in the DPIR/DEIR was sufficient to satisfy the BRA scoping requirements except for the BRA's PAD requested clarification of capacities and generation figures, as summarized below. This additional information is also presented in Chapter VIII - Infrastructure Systems Component.

As described in the DPIR/DEIR, water demand for the Project is estimated to average approximately 58,000 gallons per day (gpd). This estimate is based on water consumption records and water use rates at similar medical and laboratory research facilities. The peak flow rate for the Project is estimated to be 190 gallons per minute (gpm) based on a peaking factor of 3. Based on recent hydrant test data for the Project vicinity, sufficient water system capacity is available.

Because of future chilled water capacity constraints at the Medical Area Total Energy Plant (MATEP), the Project will require installation of a refrigeration plant to meet its cooling needs rather than reliance on MATEP. The chiller plant's capacity will be approximately 3,000 tons. The cooling towers will be located on the roof of the adjacent Pilgrim Road Garage. Currently, it is projected that the chiller plant will operate only during the moderate and warmer months of the year (roughly April through September). The plant's water consumption has been estimated to be approximately 130,000 gpd over the six months during the year of expected chiller use.

The majority of wastewater generated by the Project will be associated with domestic uses and the research laboratory. Sanitary sewage generation for the Project is estimated to be approximately 52,200 gpd, based on a 10% reduction of the water consumption estimates calculated for the Project.

It is estimated that cooling tower blowdown will average an additional 27,300 gpd on an annual basis. The blowdown will occur at a a peak rate of approximately 63 gpm during a 12-hour period. While use of the chillers will depend on seasonal temperatures, it is estimated that they will be in use for 10% of the operating period.

4.0 SUMMARY OF PROPOSED MITIGATION

4.1 Transportation

The Hospital will continue to implement its transportation demand management program designed to reduce single occupancy vehicle use by its employees. The plan includes increased transit subsidies, continued active participation in the successful CommuteWorks program (the LMA's Transportation Management Association (TMA), a service provided by MASCO), parking validation for patients, and a continual reduction in the supply of on-campus parking available for employees. These and other mitigation measures will be incorporated within a Transportation Access Plan (TAP) Agreement to be negotiated between the Hospital and the Boston Transportation Department. Appendix J details transportation mitigation commitments in the Section 61 format requested in the DEIR Certificate.

The transportation demand management program has, to date, resulted in the Hospital having the highest transit subsidy in the LMA - at a 40% subsidy. The Hospital has also continued to increase the cost of on-campus employee parking as a disincentive to employees driving to work. The Hospital is one of the first institutions to institute a vanpool subsidy program, also at a 40% subsidy. The Hospital is also one of the first institutions to commit to the concept of locating employee parking in locations remote from the LMA. As a result of these mitigation measures, the Hospital, by 1998, anticipates significant improvements in modal share and vehicle occupancy, thus limiting demand for parking.

The Hospital is an active participant with MASCO in its ongoing efforts to improve signal timing and traffic operations along Longwood Avenue and elsewhere in the LMA. Such improvements should lead to improved LOS conditions at nearby signalized intersections - such as Riverway/Longwood Avenue, Brookline Avenue/Longwood Avenue, Brookline Avenue/Deaconess Road and Brookline Avenue/Francis Street.

The Hospital is one of the larger institutions funding a variety of long-range transportation planning efforts being coordinated by MASCO.

The Hospital also supports MASCO's Long-Range Transit Study which is aimed at improvement of both private and public transit services in the LMA over a five- to twenty-year time frame. One immediate positive step taken by MASCO, and supported by Deaconess, is the consolidation and improved service efficiency expected by MASCO's recent request for bids to operate all employee shuttle operations operated either by MASCO's subsidiary, Metro Bus, or by the institutions themselves (including Deaconess). One of MASCO's long-range goals, as identified in the DEIR Certificate, is the furthering of circumferential transit services, as discussed in Chapter IV.

4.2 Pedestrian Level Winds

No further mitigation is necessary; all pedestrian level winds associated with the Project are within Melbourne Categories 3, 4 or 5, which are considered acceptable by the BRA. The winds at all building entrances also appear to be acceptable with the Project in place. Thus, pedestrian ways are considered suitable for walking at a minimum. The setback of the entrance to the Project along Pilgrim Road provides mitigation of winds at that location. No pedestrian area at or near the site is expected to have winds that exceed the BRA effective gust guideline wind speed of 31 mph more than once in 100 hours either for existing or build conditions.

4.3 Shadow

The Project will add some minimal new shadows on Riverway Park during the morning hours in the winter and autumn. The Hospital has discussed this minimal impact with the Boston Landmarks Commission and the Parks and Recreation Department and no additional mitigation has been requested.

The Hospital has created, and will continue to create, additional open space areas throughout its campus. The Hospital has contributed to the Joslin Park and is creating a new open space at the site of the temporary MRI building (which will soon be demolished). This proposed open space has been the subject of numerous meetings with the Parks and Recreation Department. The Hospital will continue to meet with the Parks and Recreation Department and the BRA in developing this open space. The open space will be installed by the Hospital prior to occupancy of the Research Facility. The Hospital will continue to own and maintain the open space. The open space will be installed by the Hospital prior to occupancy of the Research Facility.

4.4 Daylight

In an effort to assess possible mitigation to additional daylight obstruction onto Pilgrim Road from the Project, two additional alternatives were studied in the FPIR/FEIR: one option with reduced height and one with a greater building setback from Pilgrim Road. The results showed that neither option reduced the daylight obstruction values by more than 9%, and the Hospital continues to prefer the DPIR/DEIR preferred project. The Hospital will, nevertheless, consider additional mitigation to daylight obstruction along Pilgrim Road in connection with future design and construction of any new structure on the site of the existing Deaconess Building. The Hospital has agreed to give consideration to setbacks and/or use of materials that would maximize the transmission of daylight onto Pilgrim Road in conjunction with any new structure on the site of the existing Deaconess Building, subject to BRA review and that of BLC which lists this building in its files as a potential historic resource.

4.5 Solar Glare

The Hospital's use of materials such as brick and granite act as mitigation for solar glare impacts. Because of the use of these materials, the Project is not anticipated to have solar glare impacts on the surrounding buildings, pedestrian areas or roadways.

4.6 Air Quality

The Hospital's parking management policy, which restricts on-campus parking associated with the Project, acts as mitigation for the air quality CO analysis. To reduce emissions from the proposed research laboratories, all laboratory exhausts will be vented through the roof of the Project. All hood exhaust ducts will be equipped with fans which will force air vertically with a speed sufficient to provide dilution. By venting from the roof level, all exhaust gasses will be directed away from pedestrian areas.

4.7 Geotechnical Impacts

Provisions are being incorporated into the Project's design and construction procedures to limit potential adverse impacts to adjacent structures, and therefore, the impact to adjacent structures is anticipated to be minimal. The following measures will also be taken:

- The design team will conduct studies, prepare specifications, and review contractors' submittals for conformance to the Project contract documents.
- Performance criteria will be established for the lateral earth support system with respect to movements, and the construction sequence of the below-grade portion will be controlled by specific requirements in the project specifications. The contractor will be required to modify his methods and take all necessary steps during the work to protect nearby buildings and structures.
- All contractor designs and procedures will be reviewed by the Project design team prior to implementation.
- As part of the contractor's submittal, the contractor will be required to submit contingency plans for remedial measures in the event that unacceptable performance occurs. These measures will also be reviewed by the design team prior to construction.
- Geotechnical instrumentation will be installed and monitored to observe the performance of the excavation, adjacent buildings and structures, and area groundwater levels.
- The design team will provide full-time, on-site monitoring of the contractor's activities and monitoring of geotechnical instrumentation during the below-grade portion of the work. This will provide for monitoring of the contractor's compliance with project specifications, and will facilitate notification and correction of any on-site problems.

Area groundwater levels will be monitored throughout construction, and if any adverse effects are observed, remedial action will be taken and construction methods changed to mitigate further construction-related draw down.

4.8 Solid and Hazardous Waste

All waste will be handled and disposed of in accordance with applicable regulations.

Prior to demolition or construction, the Hospital will hire a qualified professional to determine if there are hazardous materials such as asbestos in the existing permanent site building. If hazardous materials are identified, the Hospital will have them removed by a licensed contractor prior to any demolition. Contaminated waste will be handled and disposed of by a licensed contractor in an approved landfill in compliance with applicable local, state, and federal regulations.

Construction waste will be disposed of in an approved landfill under the authority of the contractor. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring.

After discussions with the Commonwealth of Massachusetts Department of Environmental Projection (DEP) and with private demolition contractors, it is currently envisioned that the following practices and reuse/recycling of demolition materials will be considered:

- Demolition will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.
- Brick, concrete and asphalt will be evaluated for its reprocessing opportunities to be used as fill or reused as a construction material.
- Wood containing glues, paints or other chemical preservatives cannot be recycled and will be separated for disposal at an approved facility. All "clean" wood may either be transported to a wood-chipping facility or reused as timber. If chipped, wood chips could then be sold to local landscaping companies. Otherwise, plankings may be sold to construction companies for construction or restoration projects.
- Much of the steel and iron may be recycled. Copper piping and copper wire may be recycled as well. Recycling would consist of melting down and refabricating new products. These materials may be sold to one or more of a number of scrap metal companies in the area.

4.9 Water Quality and Resources

In order to protect water quality, stormwater in the adjacent Pilgrim Road Garage will be discharged to the storm drain system after passing through an oil/water separator.

To minimize sewage generation, the Project will meet all applicable code requirements for the installation of low-flow fixtures.

Chemical and biological waste from laboratories will be collected into appropriate containers and properly disposed of in compliance with all applicable regulations. The laboratory drainage system will be equipped with automatic chemical treatment system to control pH levels of laboratory waste entering the sewer system. In addition, any photoprocessing will be subject to a centralized silver recovery system. Treatment system specifications will be fully detailed in subsequent filings with the MWRA.

4.10 Noise

The Hospital has made a significant commitment to noise control in the design of the Project. Specific noise controls used will be selected in the final design to meet the Boston standards. Mitigation measures to be incorporated in the building design to control noise from Project sources may include but are not limited to the following:

- Installation of Noise Control Louvers on some or all building openings.
- Installation of stack silencers on the Hood Fan Exhaust Stacks.
- Installation of silencing material in the ductwork and plenums associated with the building ventilation system.
- Optimization of the arrangement of the various pieces of equipment on the mechanical floors to reduce the resulting outside sound levels.
- Application of sound absorptive material around the cooling tower area.
- Installation of fans designed to operate with lower noise levels.
- Installation of add-on attenuator equipment to specific pieces of equipment.

4.11 Construction

A Construction Management Plan (CMP) will be submitted to the Boston Transportation Department (BTD) for approval prior to the start of Project construction. The CMP includes specific mitigation measures and staging plans to minimize impacts to the abutters. The designated construction contractor will be bound by the CMP.

The proposed staging plan will be designed to isolate the construction while providing safe access for pedestrians and automobiles during normal day-today activity and emergencies. A detailed construction plan will be included in the Traffic Maintenance Plan in compliance with the City's Construction Management Program.

At all areas where pedestrians will be in the vicinity of the construction site, construction fencing will be erected together with the staging for a brow for overhead protection. As described above, public access to the Pilgrim Road Garage, if necessary, may be temporarily moved away from the staging area on Crossover Street to allow uninterrupted use of the garage and to separate the entrance/exit from construction activity. In addition, pedestrian crossovers and appropriate signs and barricades will be installed at a sufficient distance to ensure safe pedestrian routing around the work site.

Storage of demolition debris will not be allowed on-site. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring.

Prior to demolition, the existing building will be inspected for hazardous materials such as asbestos. If hazardous materials are discovered, prior to any disturbance by demolition, they will be removed and disposed of by a licensed contractor in full compliance with all local, state, and federal regulations and procedures.

To reduce emissions of fugitive dust and minimize impacts on the local environment, a number of strictly enforced mitigation measures will be adhered to. These measures are listed below:

- Wetting agents will be used regularly to control and suppress dust that may come from the demolition materials and/or soils.
- All trucks used for transportation of excavated material and demolition debris will be fully covered.
- No storage of demolition debris will be allowed on-site.
- Actual construction practices will be monitored to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized and to ensure that any emissions of dust are negligible.
- Streets and sidewalks will be cleaned periodically to minimize dust accumulations.

The Hospital is not only the sponsor of the Project but also its nearest neighbor. As a result, every reasonable effort will be made to minimize the noise impact of construction activities. Mitigation measures will include:

- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers.

- Muffling enclosures on continuously running equipment, such as air compressors and welding generators.

- Replacing specific construction operations and techniques by less noisy ones - e.g., using welding instead of riveting and mixing concrete off-site instead of on-site.

- Selecting the quietest of alternate items of equipment - e.g., electric instead of diesel-powered equipment, hydraulic tools instead of pneumatic impact tools.

- Scheduling equipment operations to keep average levels low, to synchronize noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels.

- Turning off idling equipment.

- Locating noisy equipment as far as possible from sensitive areas.

- Routing of construction traffic away from hospital access roads, where possible.

Geotechnical instrumentation will be installed and monitored to observe the performance of the excavation, adjacent buildings and structures, and area groundwater levels. Area groundwater levels will be monitored throughout construction, and if any adverse effects are observed, remedial action will be taken and construction methods changed to mitigate further construction-related draw down.

4.12 Historic Resources

Through the appropriate use of materials, height and massing, the Project has been designed to ensure its compatibility with, and minimize its impacts on, nearby historic resources, including Olmsted Park. Any additional shading on Olmsted Park will be minimal and limited to mornings during the fall and winter when the dominant species are in their dormant growth stage. Therefore, no additional mitigation is necessary to mitigate additional shadow on the historic park resource.

principle back flow preventers (RPZ) to be installed on the water services to the facility. All back flow preventers will be installed and permitted according to Massachusetts DEP Cross Connection Plan Approval (Permit BRP WS 09) requirements.

The Research Facility will meet all applicable code requirements. The Project's design will incorporate provisions for water conservation, such as:

- 1.6 gallons per flush toilets;
- 1.0 gallons per flush urinals;
- 0.5 gpm electronic faucets, where practical; and
- Flow restrictors for other plumbing fixtures.

Use of low flow fixtures can reduce the projected water consumption and resultant sewage generation by up to 20%.

In addition, an induced draft cooling tower will be used instead of a "once through system." As a result, consumptive water use will be limited to makeup for evaporative, drift and blowdown losses. To further minimize water use, cooling tower use will be restricted to periods where the outside ambient temperature exceeds approximately 55°F. In addition, when the temperature is low enough, draft fans in the cooling tower will not be used in order to further reduce evaporative and drift losses and consumptive water use. In effect, at moderate temperatures, the cooling tower will act as a heat sink without the evaporative losses and makeup requirements normally associated with typical cooling tower operation.

It is anticipated that the chiller plant will be operated to meet only peak requirements during a 6-month period, roughly April through September. The cooling tower system use will be restricted during the early spring, late fall, and winter months, and blowdown discharge to the sewer would not occur.

Chemical and biological waste will be collected and disposed of in compliance with applicable regulations. Liquid entering into the sanitary drainage system will meet all standards for effluent discharges. Laboratory drainage systems will be equipped with an automatic chemical treatment system to control the pH level of laboratory waste. Treatment system specifications will be fully detailed subsequent filings with the MWRA.

The design and construction of all proposed service connections and system modifications will be performed to the standards of BWSC and will be subject to its review and approval.

Existing sewer connections and service to the area will be maintained during construction of the Project. If interruptions are necessary, they will be coordinated with the BWSC.

With construction of the Project, the quality of storm water runoff should improve due to the installation of controls in the Pilgrim Road parking garage areas. Clean rain water will be drained from the roof of the building. Storm water from the parking garage will be routed through a sand interceptor and then through an oil separator prior to being discharged into the BWSC gravity storm drainage system.

Energy conservation measures will be an integral part of the building design. Some of the measures to be incorporated into the building design are described below:

- The building's indoor design temperatures for general office comfort will be:
    - Summer - 78 degrees Fahrenheit DB, 50% maximum relative humidity
    - Winter - 72 degrees Fahrenheit DB, 30% maximum humidity

- Indoor design temperatures for the laboratories will be:
    - Summer - 76 degrees Fahrenheit DB, 50% relative humidity
    - Winter - 72 degrees Fahrenheit DB, 50% controlled humidity

- Air Economizer Cycle - The air conditioning system will be equipped with energy saving dry bulb economizer control. This will enable use of 100% outdoor air for cooling when the outdoor conditions are favorable.

- High efficiency motors will be provided for motors operating 150 hours or more.

- Electronic energy saving ballasts with energy efficient lamps will be used for the general lighting system. These ballasts will not contain PCBs.

II. GENERAL INFORMATION

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1.0 APPLICANT INFORMATION

1.1 Project Identification

Project Name:	**New England Deaconess Hospital Corporation Research Facility**
MEPA Number:	The Executive Office of Environmental Affairs (EOEA) number assigned to the Project is No. 8776.
Location:	The Project site is located on the New England Deaconess Hospital campus, roughly bounded by Pilgrim Road, the Pilgrim Road Garage, Autumn Street and the Hospital's Deaconess Building. Figure II.1-1 shows the general location of the Project.
Site/Lot Size:	A parcel of land consisting of approximately 36,205 square feet (.83 acres). Currently the site contains three buildings, including the maintenance/ daycare building to be demolished, and the two leased temporary buildings to be removed.

1.2 Development Team

Owner/Developer:	New England Deaconess Hospital Corporation 185 Pilgrim Road Boston, Massachusetts 02215 Kermit J. McClelland, Vice President, Facilities
Development Consultant:	Roger A. Perry, Jr. 47 Temple Road Wellesley, Massachusetts 02181
Environmental and Transportation Consultant:	HMM Associates, Inc. 196 Baker Avenue Concord, Massachusetts 01742 Mitchell L. Fischman, AICP Cindy Schlessinger Barry Porter, AICP Will Donham

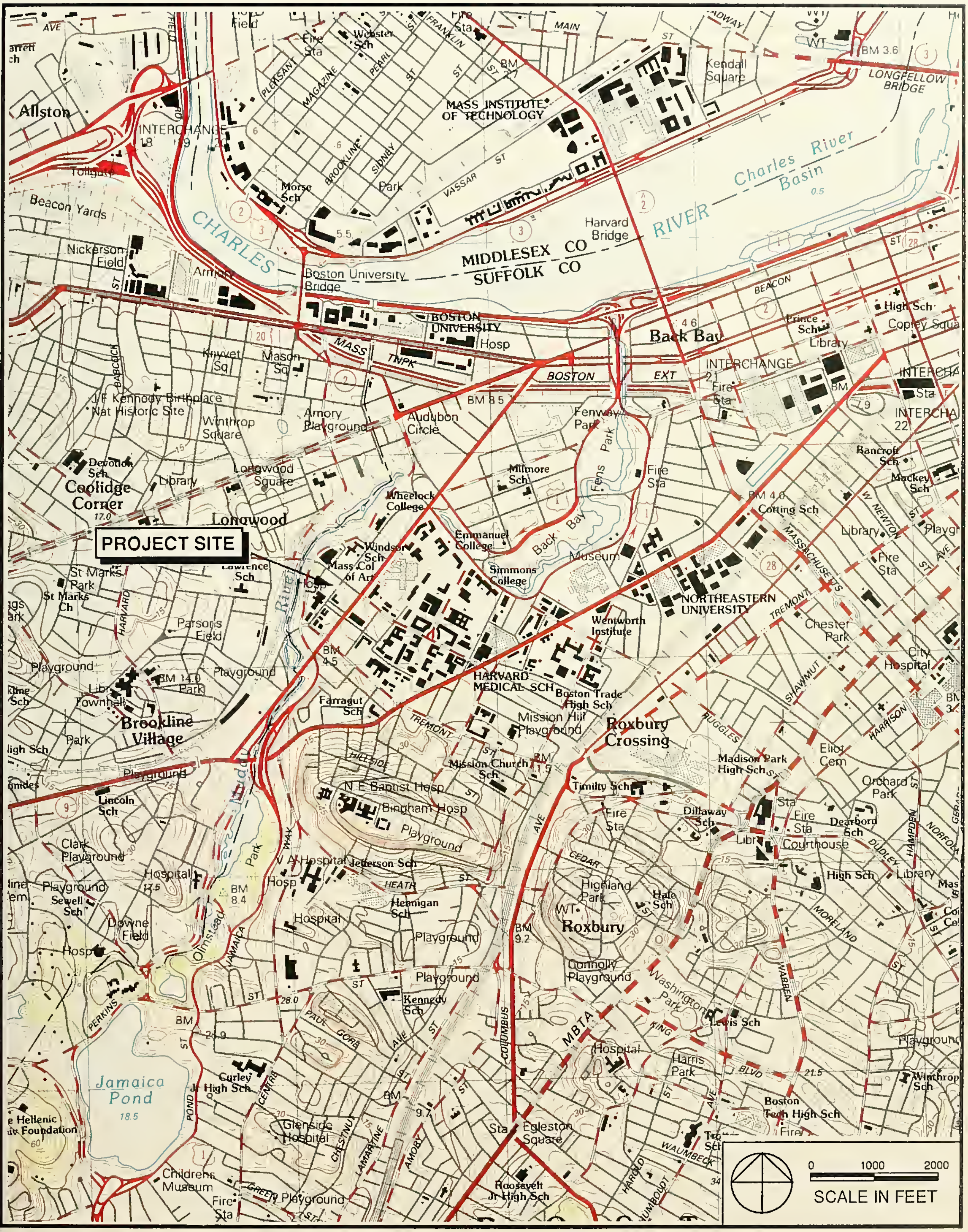

FIGURE II.1-1
SITE LOCUS MAP
NEW ENGLAND DEACONESS HOSPITAL

HMM Associates, Inc.
A Summit Company

Architect:
Shepley Bulfinch Richardson and Abbott
40 Broad Street
Boston, Massachusetts 02109

Elizabeth S. Erikson, AIA
Dana Anderson, AIA

Construction Manager:
Walsh Brothers, Inc.
150 Hampshire Street
Cambridge, Massachusetts 02139

Robert J. Cox

HVAC, Plumbing, Fire Protection, Electrical Engineers:
BR+A Consulting Engineering, Inc.
1320 Soldiers Field Road
Boston, Massachusetts 02135

Eugene Bard, Principal-In-Charge
James Polando

Structural Engineers:
Souza, True and Partners, Inc.
653 Mount Auburn Street
Watertown, Massachusetts 02172

Terry A. Louderback

Geotechnical Engineer:
Haley and Aldrich, Inc.
50 Charles Street
Cambridge, Massachusetts 02141

Joel Mooney

Code Consultant:
Eisenberg and Associates
123 North Washington Street
Boston, Massachusetts 02114

Herb Eisenberg, Principal-In-Charge

Landscape Architect:
Walker-Kluesing Design Group
144 Lincoln Street
Boston, Massachusetts 02111

Victor J. Walker, Principal-In-Charge

Legal Counsel:	Palmer and Dodge One Beacon Street Boston, Massachusetts 02108 John Rattigan, Esq. John Casagrande, Esq. Elizabeth H. Gerlach, Esq. 73 Fisher Avenue Newton, Massachusetts 02161
Wind Consultant:	Frank Durgin c/o Wright Brothers Wind Tunnel Building 17-110 Massachusetts Institute of Technology Cambridge, Massachusetts 02139

1.3 Legal Information

1.3.1 Legal Actions Pending Concerning the Proposed Project

The Hospital is not aware of any legal judgments or actions pending concerning the Project.

1.3.2 Evidence of Site Control Over the Project Area

Portions of the site are currently owned by the New England Deaconess Hospital Corporation, and the remainder is owned by NEDH Corporation, the Hospital's corporate parent. During the development of the Project, title of the Project site is expected to be consolidated.

1.3.3 Public Easements

There are no public easements planned for the site at this time.

2.0 FINANCIAL INFORMATION

Following is a breakdown of known funding sources and the proposed approximate use of funds at this time. Because the Hospital owns the Project site, there are no land acquisition costs anticipated at this time.

Sources of Funds

Tax Exempt Financing	$32,766,000
Hospital Funds	37,234,000
TOTAL	$70,000,000

Uses of Funds

Construction, Renovation, and Development Costs	$62,565,000
Debt Service	3,869,000
Capitalized Interest	2,547,000
Financing and Bond Issue Costs	1,019,000
TOTAL	$70,000,000

3.0 PROJECT AREA

Address/Location: 169-171 Pilgrim Road

The Project site is located in the Longwood Medical Area and is adjacent to the Pilgrim Road Garage and across Pilgrim Road from the Joslin Diabetes Expansion and Joslin Place. The Project site is bounded by Autumn Street, the Pilgrim Road Garage, Pilgrim Road and the Hospital's Deaconess Building. See Figure II.3-1, Site Survey.

Legal Description

Beginning at a point 19.53' from the angle point on the southerly side of Autumn Street closest to the Pilgrim Road Parking Garage, thence:

S49°41'55"E, 276.52' to a point, thence;
Along Pilgrim Road S40°15'28"W, 141.82' to a point, thence;
Along the existing building N49°49'35"W, 48.95' to a corner, thence;
Along the existing building S41°01'21"W, 4.70" to a point, thence;
Along the existing building N49°39'29"W, 171.67' to a point, thence;
Along Autumn Street N19°24'02"E, 156.83' to the point of beginning.

4.0 PUBLIC BENEFITS

4.1 Payment In-Lieu of Taxes (P.I.L.O.T.)

The Hospital will make a P.I.L.O.T. payment to the City of Boston in connection with the Project which remains under discussion with the City Assessor. See Appendix I for a letter from the Assessing Department regarding this discussion.

4.2 Development Impact Project Contribution

The Hospital has entered into a Development Impact Project Agreement dated as of January 25, 1993 with the Boston Redevelopment Authority in connection with the Project as set forth in Article 26A and Article 26B of the Boston Zoning Code.

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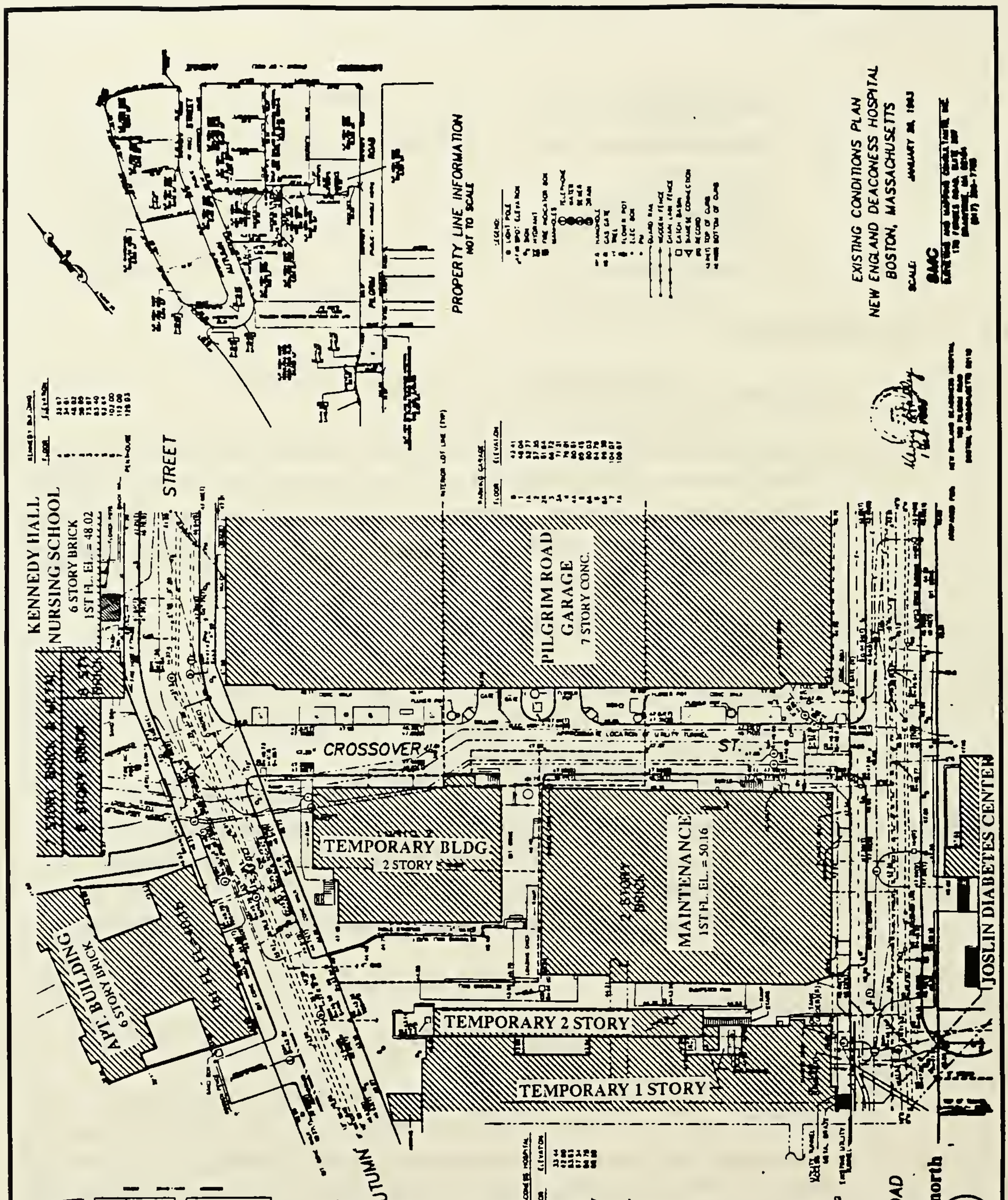

FIGURE II.3-1
SITE SURVEY PLAN
NEW ENGLAND AND DEACONESS HOSPITAL RESEARCH FACILITY

The Hospital may, at its option, satisfy its obligation for the Housing Linkage Payment, in whole or in part, either by the creation of housing units for occupancy exclusively by low and moderate income residents of the City of Boston, pursuant to the Housing Creation Option, or by payments made in accordance with the Housing Payment Exaction, or by a combination.

The total amount of the Linkage Payment, calculated under Articles 26A and 26B, shall be approximately $1,417,440, calculated as follows:[1]

	Article 26A	**Article 26B**
Total Project Less Mechanical Equipment Space and Bridge Connectors to Accessory Parking Garage Space	236,240 s.f.	236,240 s.f.
Total Gross Square Feet for Exaction	236,240 s.f.	236,240 s.f.
Exaction Rate per Square Foot	x $5.00	x $1.00
TOTAL EXACTION	**$1,181,200**	**$236,240**

4.3 Anticipated Employment Levels

4.3.1 Construction Jobs

The Hospital estimates that construction of the Project will lead to creation of approximately 300 new construction jobs at peak construction times during the anticipated 30-month construction period.

4.3.2 Permanent Jobs

The Hospital expects that up to 75 new jobs may be created by the Project in the long-term.

4.4 Programs Benefiting the Community

The Project will provide additional benefits to the city by strengthening the Hospital's research capabilities. The Hospital has a long-term supportive relationship with the city and the immediate neighborhood it abuts. Following are some of the Hospital's contributions and outreach programs. The Hospital's Institutional Master Plan provides a more complete description of these programs benefiting the community. A copy of the Deaconess

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[1] The precise amount of such payment shall be calculated according to the provisions of the DIP Agreement.

Hospital's Community Benefits Document, dated November 17, 1993, which is contained in the Master Plan, is presented in Appendix G.

4.4.1 HIV/AIDS Outreach

Through the AIDS Outreach Program, financial and programmatic support is provided to community-based organizations throughout Massachusetts. The HIV consultation and service team, consisting of a physician, nurse, and health educator, trains HIV/AIDS health-care professionals practicing in community settings. Access to the clinical and research activities of the Deaconess provides a valuable knowledge base for organizations such as the Multicultural AIDS Coalition, Outer Cape Health Services, and Whittier Street Neighborhood Health Center. Specifically, in 1993, the HIV Grants Award Program provided financial support to 19 non-profit organizations throughout the State, from Holyoke to Brockton.

4.4.2 Geriatric Outreach

As the nation's older adult population grows at a rapid rate, the programs that serve this group become increasingly important to the health-care system. The Deaconess ElderCare Community Care Coordination Service provides after-care planning and follow-up for elders discharged from the Hospital. In addition, an interdisciplinary health-care team of physicians, nurses, and social workers conducts outreach for the older adult population through a number of community-based educational initiatives. Last year, Deaconess ElderCare co-sponsored several conferences for health-care providers that examined the needs of older adults who are homeless, disabled, and from diverse backgrounds. In cooperation with the Elder Health Unit of the Massachusetts Department of Public Health, a special program educated older adults and their providers about medication use and injury prevention.

4.4.3 Collaboration with Community Health Centers

In an effort to improve the health status of the Hospital's surrounding communities, the Deaconess supports initiatives at a number of neighborhood health centers that address the medical needs of Boston residents. In 1993, outreach efforts focused on enhancing the Hospital's current relationships with Fenway Community Health Center, Mattapan Community Health Center, Roxbury Comprehensive Community Health Center, Inc., and Whittier Street Neighborhood Health Center in Roxbury. Successful collaboration with community-based health-care providers allows for the delivery of necessary primary and preventive care services in a culturally competent environment, as well as for improved access to specialized medical services.

4.4.4 School Partnerships/Job Training

As an employer of more than 3,000 people, Deaconess Hospital recognizes the need to invest in the City's future work force. The Deaconess supports job training programs for Boston's public school students through Project ProTech and the Summer Jobs Program. These initiatives not only provide part-time employment opportunities for high school students, but also allow many Deaconess employees to serve as mentors for students interested in careers in health care.

4.4.5 Community Care

Deaconess Hospital maintains a standing commitment to wellness and preventive medicine. By increasing public awareness, the prevalence of many serious health problems can be decreased. Through organized health promotions and disease screening clinics, Deaconess medical and nursing staff provide educational and medical services to local neighborhood residents. In addition, the Hospital targets programs in the Mission Hill and Fenway communities aimed at improving housing in these neighborhoods and increasing the number of local residents who work at the Hospital. Deaconess Hospital also supports such organizations as the United Way, the Breast Cancer Coalition, the American Diabetes Association, and the AIDS Action Committee.

4.4.6 Net Payment for Charity Care

Deaconess Hospital provides care to all acutely ill persons, regardless of ability to pay or status of insurance. Deaconess Hospital uses uniform procedures for determining charity eligibility prospectively, and for converting bills to charity status of all patients who cannot pay for medical services. In addition, the Hospital provides for the delivery of charity care statewide through payments to the State's charity care fund, known as the uncompensated care pool.

4.4.7 Deaconess-Subsidized Research and Education

Deaconess Hospital supports research and training initiatives aimed at improving the care of patients and educating future health-care providers. Research activities in the laboratory and on patient floors enable Deaconess scientists to continue developing and evaluating innovative treatments. The Hospital's "bench to bedside" research philosophy has improved many forms of patient care and treatment, particularly in the areas of AIDS, nutrition medicine, diabetes, cardiovascular disease, and cancer.

5.0 REGULATORY CONTROLS AND PERMITS

5.1 Zoning Relief Required for the Project

Zoning text and map amendments were approved by the Boston Redevelopment Authority (BRA) on January 13, 1994, and adopted on February 10, 1994 by the Zoning Commission in order to create new zoning controls for the area that includes the Project site and the rest of the Deaconess Hospital campus. The new zoning established the New England Deaconess Hospital Institutional District in place of the existing H-2 (Apartment) district zoning.

Within the New England Deaconess Hospital Institutional District, new institutional development is subject to an Institutional Master Plan requirement. An institution is required to prepare an Institutional Master Plan describing its future development program. The Institutional Master Plan must be approved by the Authority and the Zoning Commission prior to the construction of any project that must be described in an Institutional Master Plan. Projects that require Institutional Master Plan approval are governed by the use, dimensional, and parking and loading requirements that are approved in the Institutional Master Plan.

The Hospital has prepared a Master Plan which describes its anticipated development over the next ten-year period to the year 2003. This Master Plan, entitled "New England Deaconess Institutional Master Plan", and dated October 1993 (rev.), has been presented to the community and approved by the BRA on January 13, 1994, and by the Zoning Commission on February 10, 1994. The projects described in the Master Plan include the proposed Research Facility, and therefore the site is now zoned to allow for the development of the Project on the site.

5.2 Regulatory Reviews and Anticipated Permits

5.2.1 City of Boston Article 31 Development Review

New England Deaconess Hospital voluntarily agreed to undergo the City's Article 31 Development Review Process even though the Project was not within the geographic jurisdiction for BRA review under the current Zoning Code. Pursuant to Article 31 Development Review coordination, the Hospital has obtained BRA approval of its Institutional Master Plan following community review. As part of these reviews, the Hospital submitted a Project Notification Form (PNF) to the BRA on May 9, 1991, and a revised PNF for larger and modified Research Facility project on March 4, 1993. The Hospital initially submitted its Institutional Master Plan to the BRA in 1990 and has updated it annually through 1993. The Hospital participated in community review of its Master Plan, and its final Institutional Master Plan was approved on January 13, 1994 by the BRA, and February 10, 1994 by the Zoning Commission.

The BRA initially issued a Scoping Determination for the Project on August 2, 1991 requiring the preparation of a Draft Project Impact Report (DPIR). A modified Scoping Determination was issued for the Project based on the revised PNF on May 17, 1993.

The DPIR was submitted to the BRA on November 1, 1993, and a Preliminary Adequacy Determination was issued on February 11, 1994. A copy of the Preliminary Adequacy Determination is contained in Appendix A.

5.2.2 Massachusetts Environmental Policy Act (MEPA) Review

An Environmental Notification Form (ENF) was submitted for the Research Facility on July 31, 1991 and was noticed in the *Environmental Monitor* on August 7, 1991 pursuant to the Massachusetts Environmental Policy Act (MEPA). A Certificate of the Secretary of Environmental Affairs on the ENF was issued September 23, 1991 stating that further MEPA review was not necessary. On March 4, 1993, a Notice of Project Change was filed with MEPA to reflect changes to the Project including an increase in the building site and floor area. The Certificate issued by the Secretary on July 15, 1993 required the submission of an Environmental Impact Report (EIR). A DPIR/DEIR was prepared in response to the Secretary's Certificate on the Notice of Project Change, and was submitted on November 1, 1993. The Secretary's Certificate on the DPIR/DEIR which was issued on December 16, 1993, stated that the DEIR adequately and properly complies with MEPA, and outlined those issues to be addressed in the Final EIR. A copy of the Certificate on the DEIR is contained in Appendix A.

A single document, serving as a FPIR/FEIR has been prepared to serve both the City and State review processes, in accordance with MEPA regulations.

5.2.3 Anticipated Permits

Following is a list of the anticipated local, state, and Federal permits required for the Project. (Please note that each permit listed will be filed unless further analysis shows that such permit or action is not required. Additional permits may be needed as the building design proceeds further.)

Agency	Permit or Action
FEDERAL	
Environmental Protection Agency	Pre-Asbestos Removal Notice NPDES Permit for Dewatering Discharge NPDES Stormwater Permit
STATE	
Executive Office of Environmental Affairs/MEPA Unit	MEPA Certificate of Compliance Environmental Notification Form Environmental Impact Report
Department of Environmental Protection:	
- Division of Air Quality Control	Air Plans Approval (For Emergency Generator) Pre-Demolition Notice Pre-Asbestos Removal Notice Pre-Construction Notice
- Division of Water Supply	Cross Connection Permit
Massachusetts Water Resources Authority	Sewer Connection/Extension Permit Sewer Use Discharge Permit
Department of Labor and Industries	Asbestos Removal Permit
LOCAL	
Boston Redevelopment Authority	Article 31 Development Review Institutional Zoning District Proposal Institutional Master Plan Approval Development Impact Project Plan and Agreement Cooperation Agreement Boston Residents Construction Employment Plan First Source Agreement with EDIC/Office of Jobs and Community Services
Boston Zoning Commission	Establishment of New England Deaconess Hospital Institutional District
Boston Transportation Department	Transportation Access Plan Agreement Construction Management Plan
Boston Water & Sewer Commission	Water & Sewer Tie-In Approval Discharge Permit for Dewatering
Boston Inspectional Services Department	Demolition Permit Earth Removal Permit Building Permit

Agency	**Permit or Action**
Boston Air Pollution Control Commission	Compliance with Construction Noise Regulations
Boston Civic Design Commission	Approval of Schematic Design Plans
Boston Parks and Recreation Commission	Approval for Construction within 100 feet of a city park
Boston Department of Public Works/ Public Improvements Commission	Easement for Street/Sidewalk Alteration Street Occupancy Permit
Boston Licensing Board	Storage of Flammables and Chemicals

6.0 COMMUNITY GROUPS

The Hospital has continually consulted with interested individuals and community groups within the LMA in undertaking new projects. The Hospital updated its Institutional Master Plan to include the Project. The Project has been coordinated with MASCO's future plans and activities.

The Hospital has had numerous meetings with representatives of the community and planning groups as well as abutters to the Project.

6.1 Interested Parties

Community groups, abutters and individuals which may have interest in the Project are listed below:

Name	**Relationship to Project**
Joslin Diabetes Center	Abutter
375 Longwood Avenue	Abutter
Temple Israel	Abutter
370 Longwood Avenue Apartments	Abutter
Mission Hill Planning and Zoning Area Committee (PZAC)	Community Group
Fenway Planning & Zoning Area Committee (PZAC)	Community Group
Medical Academic and Scientific Community Organization (MASCO)	Professional Organization

6.2 Meetings

Since January 1, 1993, the Hospital and members of its project team have attended 29 meetings with BRA staff, culminating in the completion of BRA staff review of the Research Facility schematic design plans on October 19, 1993, and approval of the schematic design plans by the BRA Board on January 13, 1994.

The Hospital met with the Boston Civic Design Committee (BCDC) five times during 1993, culminating in BCDC's favorable recommendation on August 3, 1993 to approve the Hospital's schematic design plan.

The Hospital met with Boston Parks and Recreation Commission three times in 1993. This Commission approved the Project on August 30, 1993.

In addition, the Hospital met twice with the City's Public Improvements Commission and a number of times with the Transportation Department in 1993 and 1994.

The Project was presented to the Mission Hill PZAC on October 5, 1993, November 9, 1993, and November 22, 1993. The PZAC recommended approval of the Project to the BRA on November 22, 1993.

7.0 RELATIONSHIP TO OTHER LMA PROJECTS AND LMA PLANNING

Deaconess Hospital is an active participant in City-sponsored master planning for the Longwood Medical Area. This effort, being directed by the Boston Redevelopment Authority in coordination with LMA institutional representatives and residential community participants from nearby Fenway and Mission Hill, is scheduled for completion in calendar 1994. The Research Facility project has been reviewed by the BRA as it relates to the current LMA planning effort. The Project is consistent with general principles guiding this study, including the avoidance of negative impacts on the City's existing housing stock or on existing park land or open space resources. It also consolidates existing inefficient uses into one facility which is an objective of the City's planning.

The Deaconess Project is being planned at the same time that Dana-Farber Cancer Institute is proposing a Research Facility (EOEA #9452) on the other side of Brookline Avenue, and Harvard Institutes of Medicine is proposing the renovation of the former English High School to a Research Facility (EOEA #9428). All three projects demonstrate the importance of new research to the survival and leadership of these institutions in their key research areas.

Research supports not only medical education but clinical excellence, a critical aspect of all of these Harvard teaching hospitals.

Finally, the construction planning of all of these new projects will be coordinated to minimize street occupancy and traffic disruption. This coordination will occur through the Transportation Access Plan Agreements with the City which are required for each project proponent.

III. PROJECT DESCRIPTION AND ALTERNATIVES

III. PROJECT DESCRIPTION AND ALTERNATIVES

1.0 STATUS OF PROJECT REVIEW BY CITY AGENCIES AND COMMISSIONS

The Project has been reviewed by the City's Environmental Department (including Boston Landmark Commission staff), the Parks and Recreation Commission, the Boston Transportation Department, Public Improvement Commission, Boston Civic Design Commission, the Boston Redevelopment Authority, and the Boston Zoning Commission.

The Hospital met with the Environmental Department on November 22, 1993 to brief the environmental and Landmark Commission staff on the information contained within the DPIR/DEIR. The Environmental Department comment letter of December 3, 1993 found the DPIR/DEIR to be adequate and requested additional information in the final report. The Hospital met again with the Environmental Department and Landmarks Commission staff on February 3, 1994 to review the findings of the FPIR/FEIR shadow impact analysis on park land vegetation within Riverway Park, and to address outstanding issues. Staff members concurred that new shading on the Riverway Park was minimal and should not adversely affect the park land vegetation's growth cycle as the shading occurs primarily during dormant growth periods during the fall and winter.

The Project proponent will meet a second time on February 17, 1994 with Boston Transportation Department (BTD) staff to review issues raised in the BRA's PAD, including commitments to transportation demand management mitigation and improvements to pedestrian and bicycle facilities on the hospital campus. The Hospital's commitments are being formalized in a Transportation Access Plan Agreement between the Hospital and BTD. A draft agreement is being finalized with BTD.

The Boston Redevelopment Authority held a public hearing on the Research Facility project on December 22, 1993 in conjunction with recommendations by staff to approve the schematic design plans, the Institutional Master Plan, and Article 31 development agreements normally required by the BRA and City. The BRA Board subsequently voted approval of these recommendations at its regularly scheduled meeting on January 13, 1994. As previously reported, the BRA's PAD was subsequently issued on February 11,1994, outlining the requirements for the FPIR. See Appendix D for BRA Board Votes on the Project and Appendix A for the PAD.

The Boston Zoning Commission held a February 10, 1994 public hearing upon the BRA's petition to establish The New England Deaconess Hospital Institutional District to regulate the zoning for the Research Facility, and the

Hospital campus as a whole. The Zoning Commission voted on February 10, 1994 to establish such a district and accept a text and map amendment as requested by the BRA.

As previously reported in the DPIR/DEIR, the Boston Civic Design Commission favorably reviewed the Project on August 3, 1993. In addition, the Boston parks and Recreation Commission favorably reviewed the Project on August 30, 1993. The Hospital also briefed the City of Boston's Public Improvements Commission on the Project.

2.0 EXISTING USES/PROJECT CONTEXT

Existing site uses include the Hospital's maintenance building and two temporary structures. The Maintenance Building, originally constructed in 1959, will be demolished to allow for construction of the Project. This two-story building houses the Hospital's maintenance and support facilities, which will be relocated to the basement of the Deaconess Building. The day-care center currently within this structure will be relocated to the Hospital-owned building at 21 Autumn Street. The two temporary structures will be demolished and their uses returned to the Farr and other existing Hospital buildings.

The LMA, which surrounds the Hospital Campus to the north and east, is characterized by medical institutions and health care related facilities. The Joslin Diabetes Center is located across Joslin Place from the Hospital's new Clinical Facility. Other major medical institutions in the immediate vicinity include the Dana-Farber Cancer Institute, Beth Israel Hospital, Brigham and Women's Hospital and Children's Hospital Medical Center.

The Project site is surrounded on three sides by New England Deaconess Hospital facilities. The 761-space Pilgrim Road Garage is located on the northern side of Crossover Street, a private way owned by the Hospital. Access to the garage is via Pilgrim Road and Autumn Street, which will continue to be the access following completion of the Project.

The Hospital's Deaconess Building, located on Pilgrim Road between the Project site and the Farr Building, currently houses patient beds and other diagnostic and treatment services.

The Kennedy Building, which serves as the Hospital's Ambulatory Care Unit for outpatient and ambulatory support services, is located on the western side of Autumn Street opposite the Project site.

3.0 DETAILED PROJECT DESCRIPTION

In order to meet the large growth in research activities, which currently involves 225 individuals and an annual budget of $15 million, the New England Deaconess Hospital proposes to construct a Research Facility (see Figure III.1-1). Without this research space, the Hospital will not be able to sustain delivery of the tertiary medicine for which it is widely known. A significant portion of the new research space will be used to relocate and consolidate into one building existing research programs which are inefficiently dispersed. This includes space in the Cancer Research Institute (CRI) on Pilgrim Road, which is planned for demolition because of its structural condition (see Figure III.1-2), and space currently being leased at 50 Binney Street (the Shields Warren Research Building), 21-27 Burlington Avenue, and 99 Brookline Avenue.

The Research Facility will consist of two below-grade levels for an animal research facility and mechanical support space and 11 stories above-grade including two levels for office/support space and an auditorium, eight levels of research laboratories and a mechanical penthouse above the highest occupiable level. The height of the Research Facility will be 175 feet above grade which includes a rooftop mechanical penthouse but excludes ventilation stacks and similar mechanical equipment. The Research Facility includes total floor area of approximately 295,000 gsf (236,740 gsf for floor area ratio purposes).

The Project will include space for an animal research facility, laboratory space for research, an auditorium and office support space and other accessory uses (such as, without limitation, loading facilities and storage of hazardous and flammable materials).

The Project will be connected to the abutting Deaconess Building, and will include a bridge connecting the facility to the Pilgrim Road Garage, as well as a bridge connecting the garage to the Kennedy Building. Cooling towers for the Project will be located on top of a portion of the adjacent Pilgrim Road Garage as part of the Project. The Project will also include minor infill additions to the abutting Deaconess Building which are necessary to coherently relate and connect this building to the Research Facility. Truck loading and service access are incorporated into the Project with access from Autumn Street. Two truck loading docks and a dumpster dock will be in an enclosed area on the first floor of the Project.

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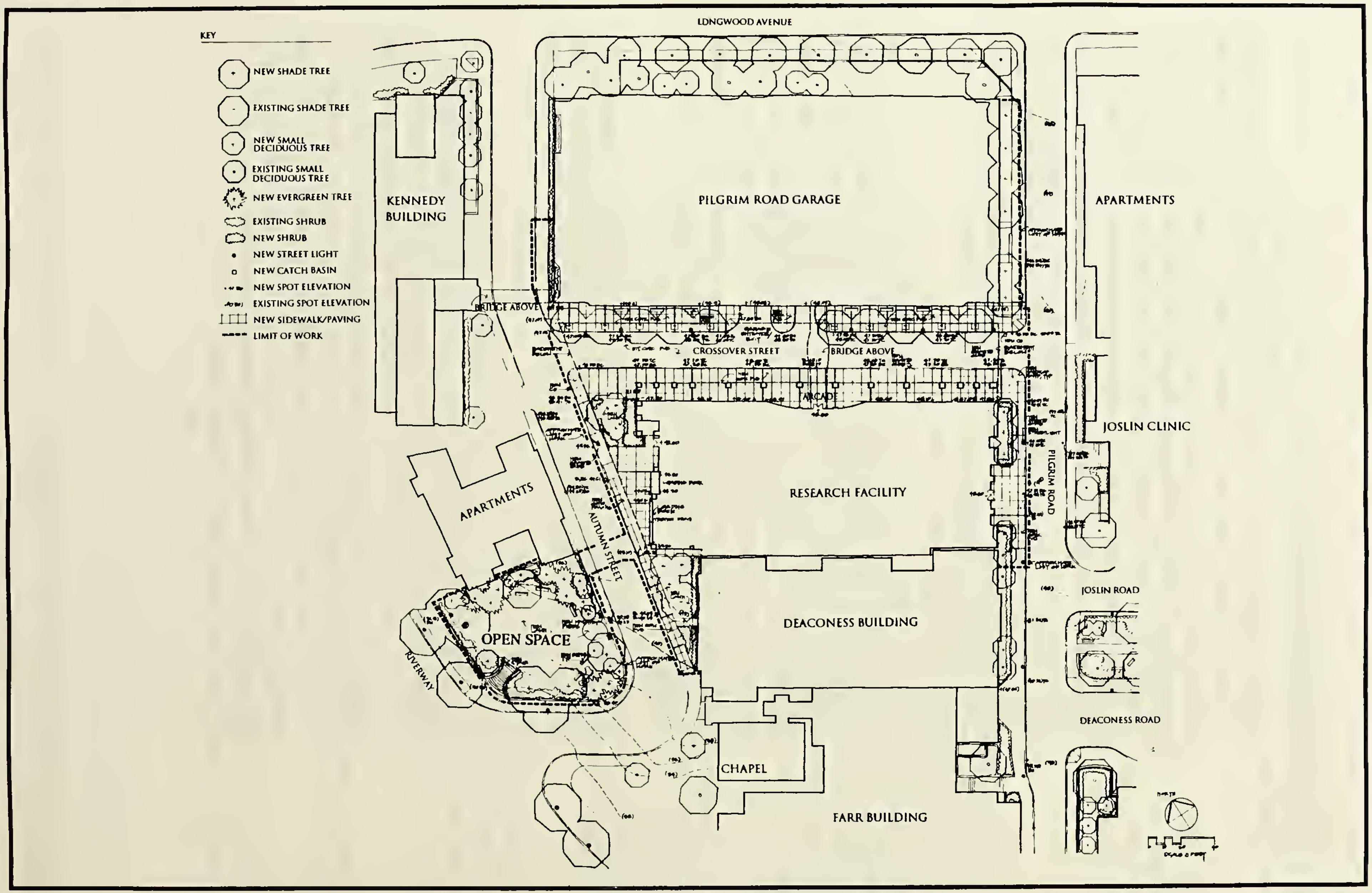

FIGURE III.1-1
SITE PLAN
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

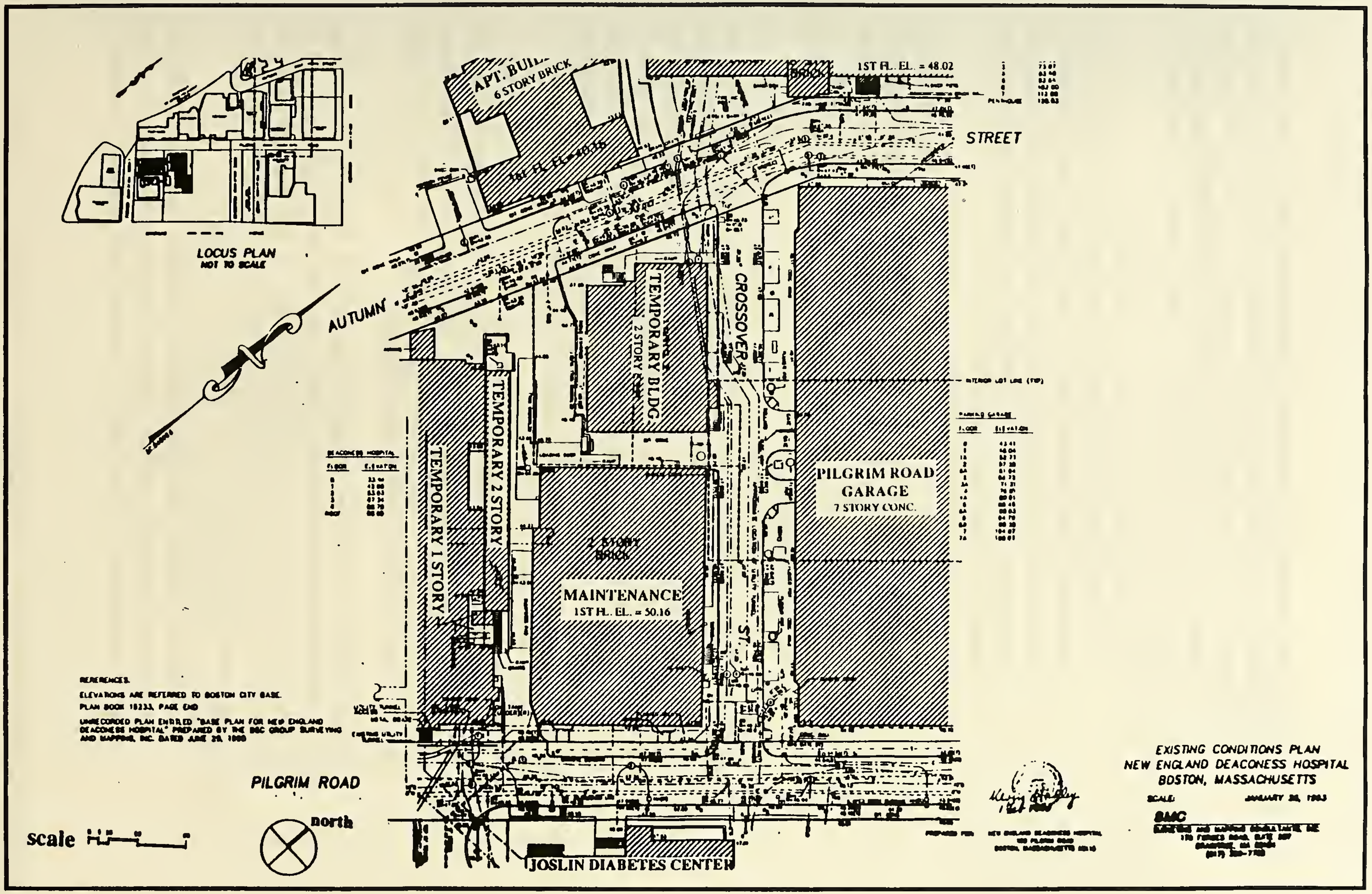

FIGURE III.1-2
EXISTING CONDITIONS PLAN
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

Of the 300 persons to be employed in the Research Facility, approximately 225 people are currently engaged in research at on-campus and off-campus facilities who will be relocated into the new space. Only 75 of the researchers are expected to be new to the Hospital. The detailing of the existing space to be eliminated, which houses many of these researchers, includes the following:

- ***Cancer Research Institute (CRI)*** - This Hospital building contains approximately 42,500 gsf of space. The CRI will initially be used for decompression of existing hospital space following relocation of employees to the Project. The building will be demolished during the Master Plan period ending in 2003.
- ***Shields Warren Research Laboratory*** - The Hospital leases approximately 30,000 gsf of space from Dana-Farber Cancer Institute. Following relocation of researchers to the Research Facility Project, but no later than 1999, Dana-Farber will occupy this space for its own uses in accordance with the Institute's Institutional Master Plan submitted to the BRA.
- ***21-27 Burlington Avenue*** - The Hospital leases approximately 45,000 gsf of space at 21 - 27 Burlington Avenue in the Fenway. Following relocation of research uses to the Project, it is expected that Children's Hospital, owner of 21-27 Burlington Avenue, will reuse the space for research activity undertaken by employees currently occupying other Children's facilities. Based on current hospital trends within the LMA, the reuse of this space will not lead to additional employment by Children's.
- ***99 Brookline Avenue*** - The Hospital leases approximately 22,000 gsf of space at 99 Brookline Avenue. This space, owned by Beth Israel, will likely be used as decompression space for existing research activities already at Beth Israel Hospital.

Approximately 175,000 gsf of space in the Research Facility will be devoted to laboratory space for the researchers. About 20,000 gsf of space will be devoted to an upgraded animal research facility in the basement and sub-basement. The proposed program with the gross square feet by floor is contained in Table III.3-1.

The Research Facility will strengthen the Hospital's focus on patient care research and will enable research scientists to effectively perform their dual roles as researchers and clinicians. In summary, this facility is essential to meet the Hospital's research requirements. (See Figures III.3-1 through III.3-7 for illustrations of the Research Facility.)

4.0 ALTERNATIVES CONSIDERED

As reported in the DPIR/DEIR, the Research Facility underwent changes since the filing of the revised PNF and the Notice of Project Change in the Spring of 1993. As described in these earlier filings, a twelve-story, 190 feet high, 325,000 gsf building was proposed. The current proposal, the same as the DPIR/DEIR proposal, is for eleven stories above-grade (which includes a one-story rooftop mechanical area), 175 feet high, and containing approximately 295,000 gsf of floor area. The Project is consistent with the Hospital's nearby Farr Building which has a height of approximately 155 feet.

Table III.3-1 New England Deaconess Hospital/Research Facility Program

Floor Level	Use	Gross Area Sq. Ft. (gsf)
Sub-Basement	Animals/Mechanical	32,000
Basement	Animals/Mechanical	25,500
Level 1	Common Use	23,500
Level 2	Common/Mechanical/Connector	22,000
Level 3	Laboratories	22,000
Level 4	Laboratories	22,000
Level 5	Laboratories	22,000
Level 6	Laboratories	22,000
Level 7	Laboratories	22,000
Level 8	Laboratories	22,000
Level 9	Laboratories	22,000
Level 10	Laboratories	22,000
Level 11	Mechanical	19,000
Total Gross Building Area Without Bridges		**295,000 gsf**

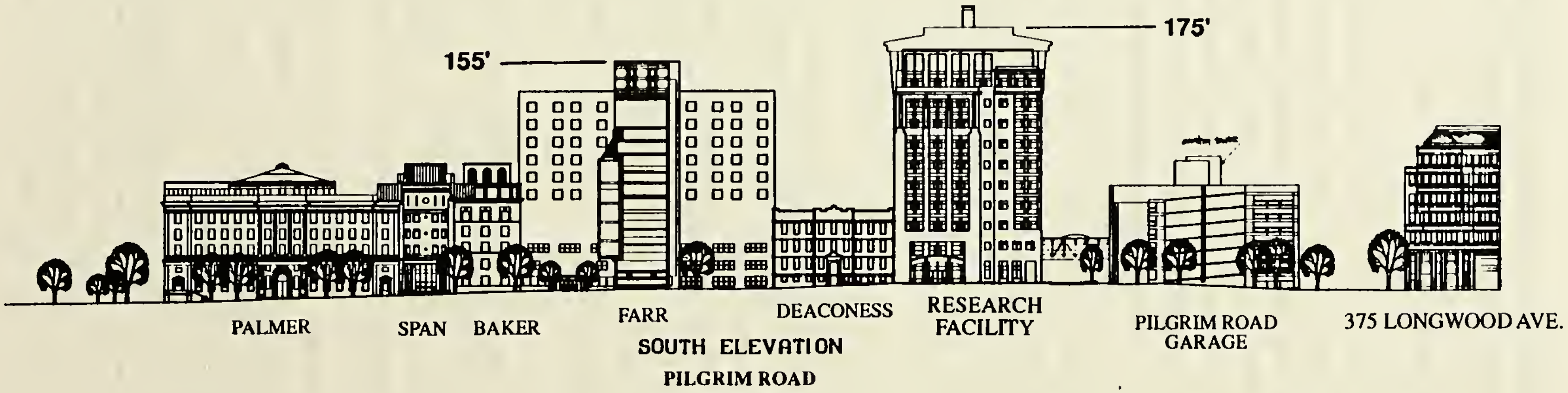

FIGURE III.3-1
ELEVATION FROM PILGRIM ROAD

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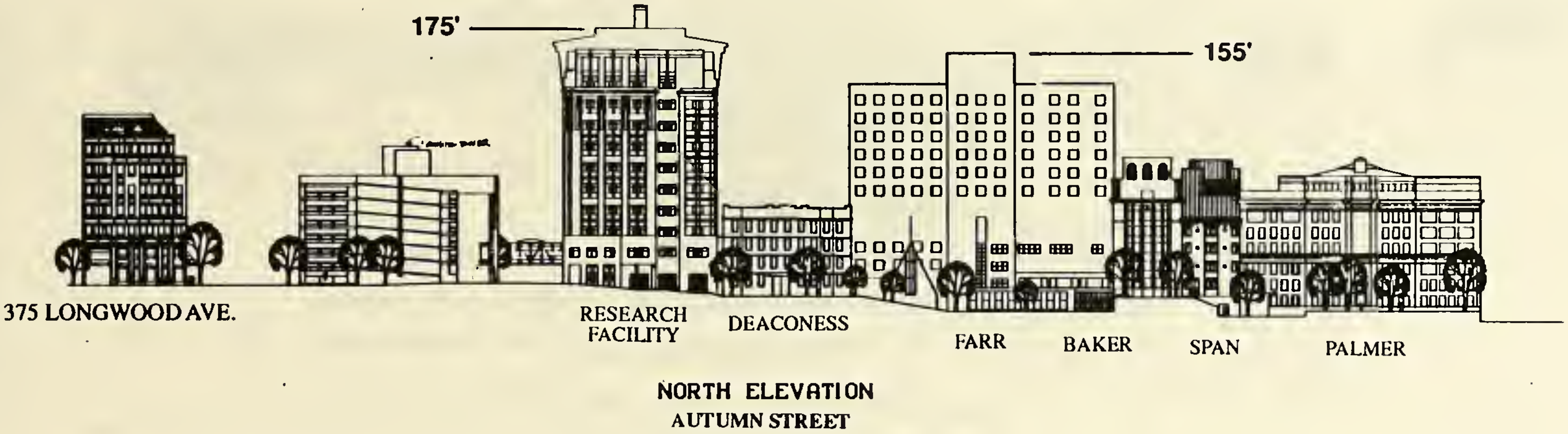


FIGURE III.3-2
ELEVATION FROM AUTUMN STREET
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

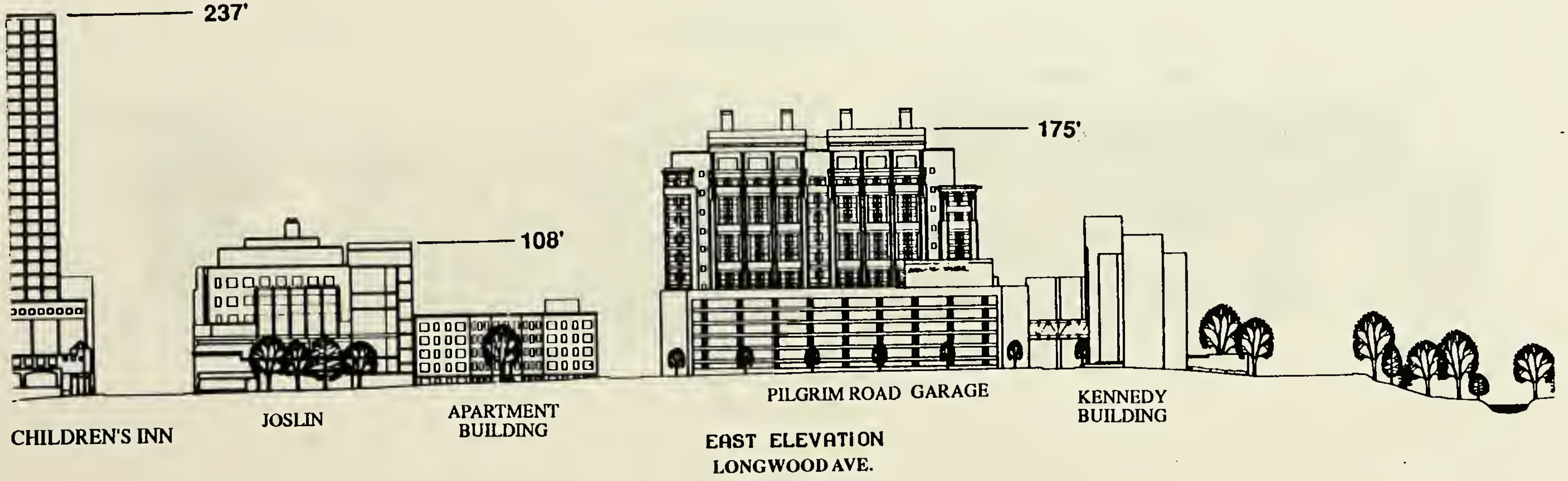


FIGURE III.3-3

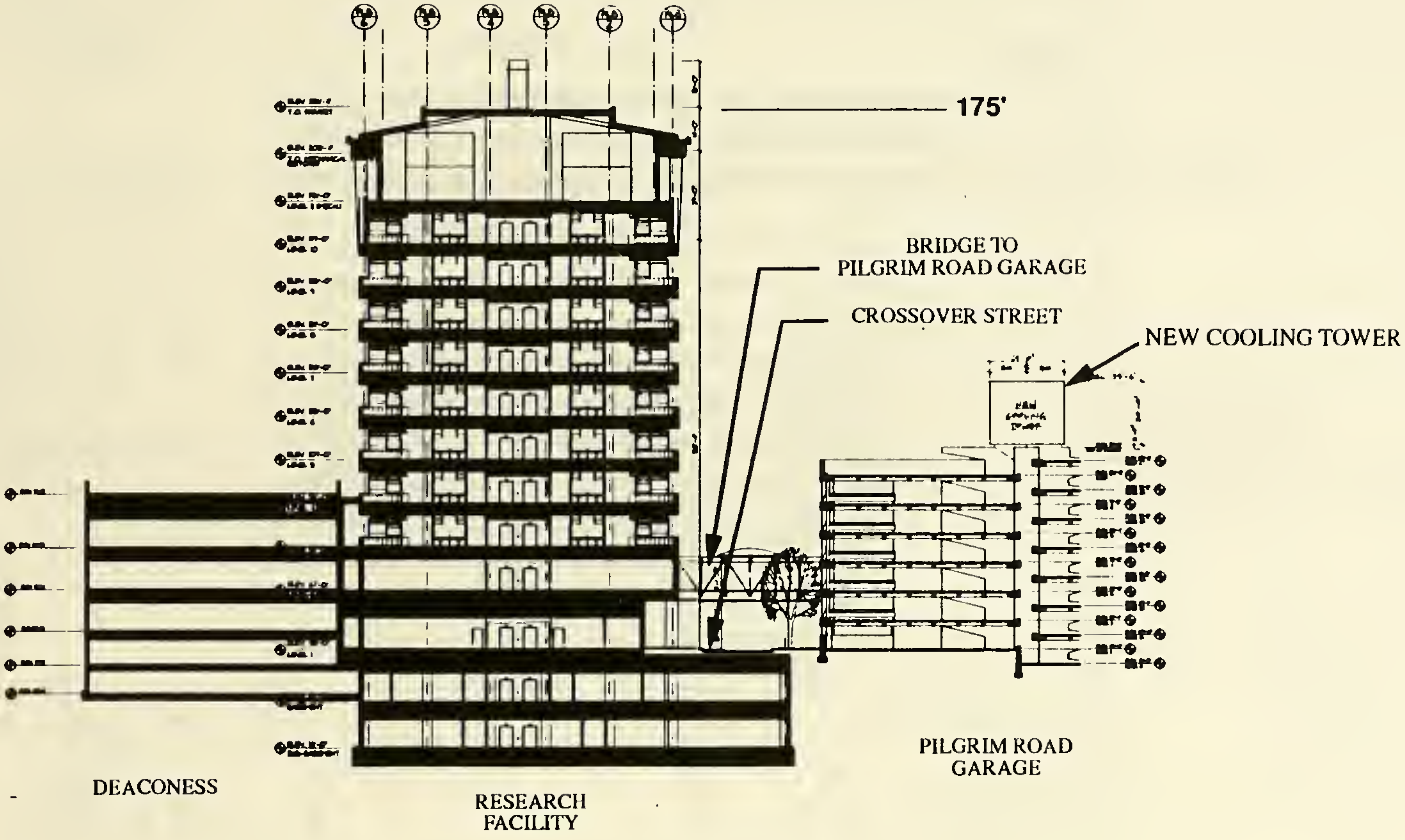


FIGURE III.3-4
CROSS SECTION FROM DEACONESS ROAD TO PILGRIM ROAD GARAGE
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

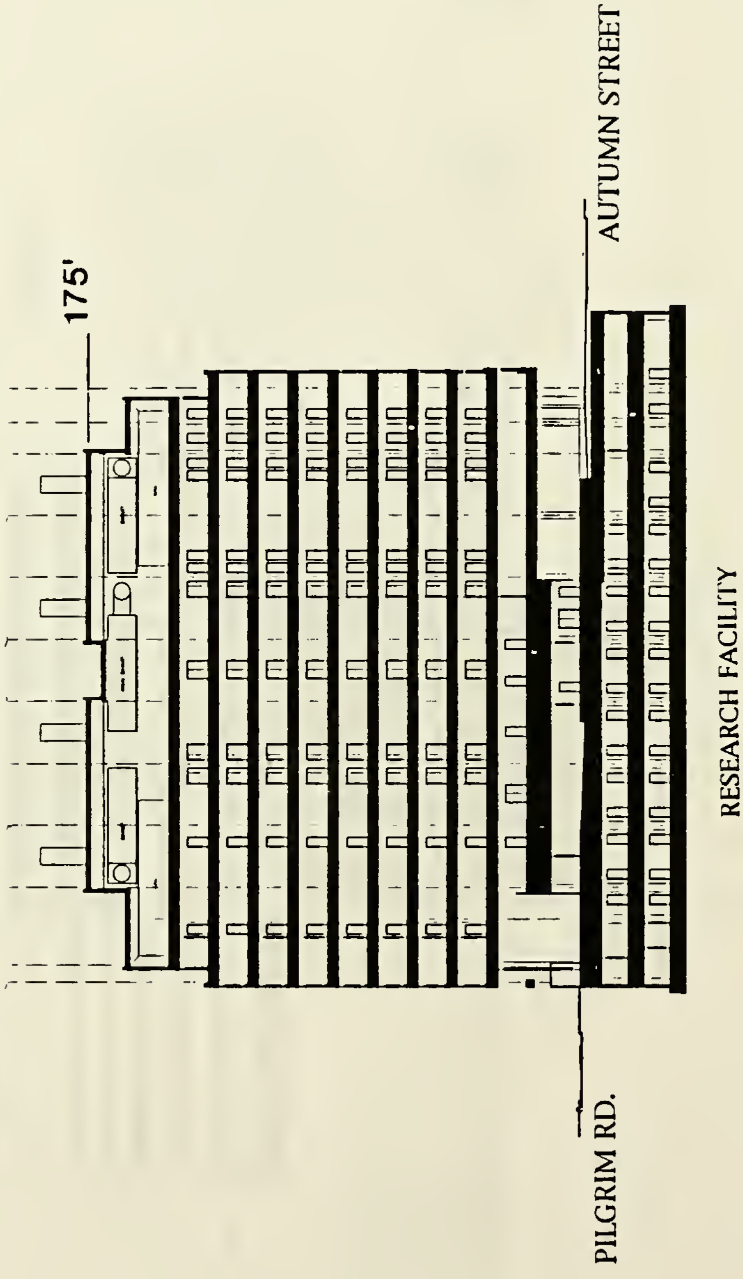


FIGURE III.3-5

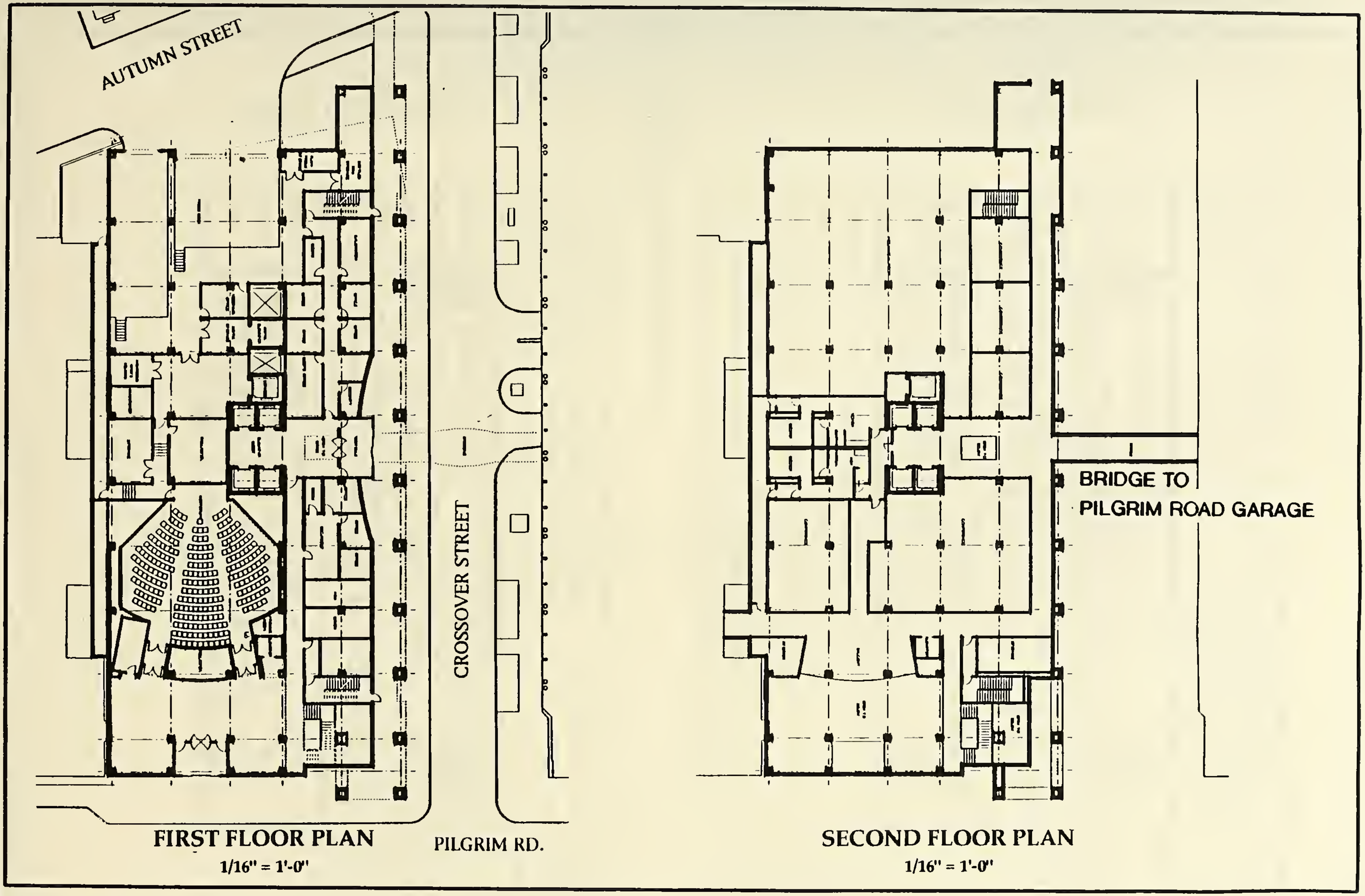
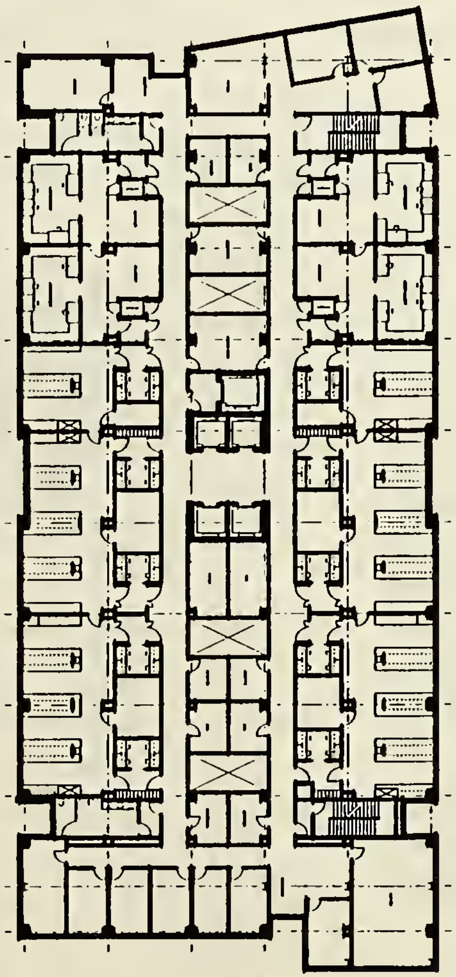
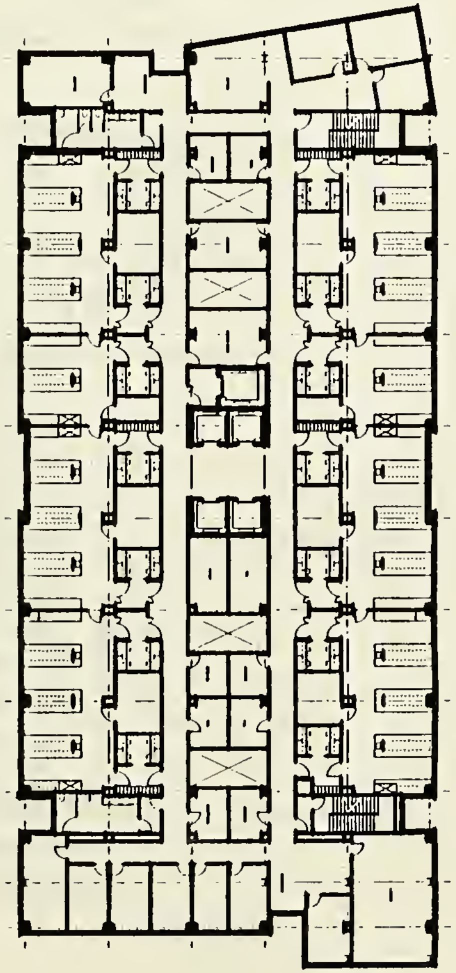


FIGURE III.3-6
FIRST AND SECOND FLOOR PLANS
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY



TYPE 1 LAB FLOOR
1/16" = 1'-0"



TYPE 2 LAB FLOOR
1/16" = 1'-0"

FIGURE III.3-7
TYPE 1 AND TYPE 2 LABORATORY FLOORS

The Hospital developed one alternative scheme to address the MEPA scope for the DPIR/DEIR (which requested an Intermediate Building alternative between 170,000 and 325,000 gsf). This alternative, presented in the DPIR/DEIR, showed a height of 147 feet and approximately 251,000 gsf of floor area. In this scheme, two laboratory floors (22,000 gsf each) were removed from the building mass.

The environmental and transportation impacts for this scheme were presented in the DPIR/DEIR. The analysis demonstrated that the environmental impacts of the proposed Project (175 feet; 295,000 gsf) were not noticeably greater than the impacts of the alternative scheme (147 feet; 251,000 gsf).

The comparative analysis of the DPIR/DEIR and FPIR/FEIR alternatives are summarized for easy reference in Table III.4-1.

Two additional alternative building configurations were reviewed for the FPIR/FEIR. One scheme increased building setback from 8 feet to 16 feet along Pilgrim Road while maintaining the total height of 175 feet. The other scheme reduced building height by four stories (from 175 feet to 119 feet) while maintaining the 8-foot setback along Pilgrim Road. These schemes were presented for comparative purposes to illustrate changes in daylight obstructed along Pilgrim Road with different building configuration.

5.0 CONSTRUCTION SCHEDULE

Construction of the Research Facility is expected to begin in 1995 and be completed within approximately 30 months. The Project will require demolition of the Maintenance Building and the removal of the two existing temporary structures on the site. The maintenance operations will be moved to the basement of the Deaconess Building and the day-care space now in the Maintenance Building will be relocated to a Hospital-owned building at 21 Autumn Street (formerly 306 Riverway). During the construction period for the Research Facility, access to the Pilgrim Road Garage will be modified. Access on Crossover Street will be relocated so that entry will be from Pilgrim Road and the exit will be on Autumn Street. This will leave Crossover Street, which is a private way owned by the Hospital, available for excavation and construction activities.

Table III.4-1 Comparative Analysis No-Build, ENF/PNF, Proposed Project, and Alternative Schemes

Aspect	No-Build	Revised PNF/ Notice of Project Change	Proposed Project	DPIR/DEIR Alternative Scheme (Intermediate Build)	FPIR/FEIR Alternative Scheme (Increased Setback)(3)	FPIR/FEIR Alternative Scheme (Reduction in Height)(3)
Building Height (Feet)	-	190'	175'	147'	175'	119'
Setback from Pilgrim Rd.	8'	8'	8'	16'	16'	8'
Floor Area (gsf)	-	325,000	295,000	251,000	260,000	207,000
Compatibility with Height of Nearby Farr Building - 155' (Feet)	-	35' greater	20' greater	8' less	20' greater	36' less
Increased Shadows on Riverway	None	September, December	September, December	September, December	September, December	September, December
Wind Impacts at Street Level	None	(1)	(1)	(1)	(1)	(1)
Daylight Obstruction Along Pilgrim Road	28.6%	NA	75.4%	72.4%	66.3%	67.6%
Infrastructure	None	(2)	(2)	(2)	(2)	(2)

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1 Comfortable for walking.

2 No capacity problems.

3 Completed for daylight impacts analysis only.

IV. TRANSPORTATION COMPONENT

IV. TRANSPORTATION COMPONENT

The information provided in the DPIR/DEIR on the transportation component was considered sufficient with respect to circulation to satisfy the BRA scoping requirements. Specific information requested to be provided in the FPIR/FEIR includes discussion of parking demand by mode splits related to proposed mitigation measures; construction parking impacts, and pedestrian and bicycle system improvements.

The Secretary's Certificate on the DEIR requested additional detail on how trip generation rates were developed, the Hospital's commitments to improved bicycle facilities, and a transportation demand management program designed to reduce single occupancy vehicle use. Specific reference was also made to the Hospital supporting MASCO, City of Boston, and state agencies to implement larger scale transportation/transit improvements such as the circulatory shuttle bus in the LMA and other infrastructure improvements.

Additional definition of mitigation measures, and the Hospital's commitments to same, were requested in both BRA's PAD and the DEIR Certificate. It was also requested by the BRA that the Transportation Access Plan Agreement be substantially finalized prior to the formal issuance of a Final Adequacy Determination. A Draft Section 61 Format listing mitigation, timing of mitigation and responsibility for mitigation was requested by the DEIR Certificate.

This transportation analysis, updated from the DPIR/DEIR, includes the following:

- A definition of existing traffic, transit, and parking conditions.
- An evaluation of the Project's long-term effects on traffic, transit, and pedestrian activities as well as on parking demand, in the context of the Hospital's future transportation policies and goals.
- Identification of, and commitment to implement, appropriate measures to mitigate the Project's effects presented in a Draft Section 61 Format (as contained in Appendix J).
- A qualitative evaluation of the Project's short-term effects on traffic related to construction activity.

This transportation analysis forms the basis for a Transportation Access Plan (TAP) and TAP Agreement which the Hospital will enter into with the BTD.

The Agreement is currently being negotiated with BTD and is nearing completion.

1.0 EXISTING CONDITIONS

1.1 Existing Operating Conditions

The New England Deaconess Hospital is located on approximately 376,000 square feet of land (excluding area between streets) within the Longwood Medical Area (LMA). The Campus is bordered by The Riverway, Brookline Avenue, Joslin Place, Pilgrim Road, and Longwood Avenue. The DEIR/DPIR analyzed operating conditions at seven intersections as shown in Figures IV.1-1, IV.1-2, and IV.1-3.

Traffic operations were analyzed according to standard procedures and practices outlined in the 1985 Highway Capacity Manual. The efficiency of traffic operations at a location (or changes in traffic operations), is measured in terms of Level of Service (LOS). The LOS refers to the quality of traffic flow along roadways and at intersections. It is described in terms of Levels A through F; where A represents the best possible free-flow traffic conditions, and F represents congested, forced-flow or failing conditions. These measures are discussed briefly below, and Table IV.1-1 summarizes their interrelationships.

At signalized intersections, LOS is defined in terms of average approach delays (measured in seconds). Average delay measures the mean stopped delay experienced by vehicles entering a signalized intersection during the peak hour period. Average delay is measured for each individual approach and for the intersection as a whole. The LOS deteriorates as average delays increase.

At unsignalized intersections, LOS is defined in terms of reserve capacity. The reserve capacity is the unused capacity of an approach lane(s) to an intersection. This measure, defined as passenger cars per hour, indicates how many more vehicles would be required to bring the intersection approach lane(s) to capacity. The LOS deteriorates as reserve capacity values decrease.

During 1993 conditions, three of seven intersections operate at LOS E or worse during at least one of the two peak hours (Table IV.1-2). At the signalized intersections, Brookline Avenue at Riverway will operate at LOS F during both AM and PM peak hours. Brookline Avenue at Francis Street will operate at LOS E during the AM peak hour. The two remaining signalized intersections will operate at LOS C or better for both AM and PM peak hours.

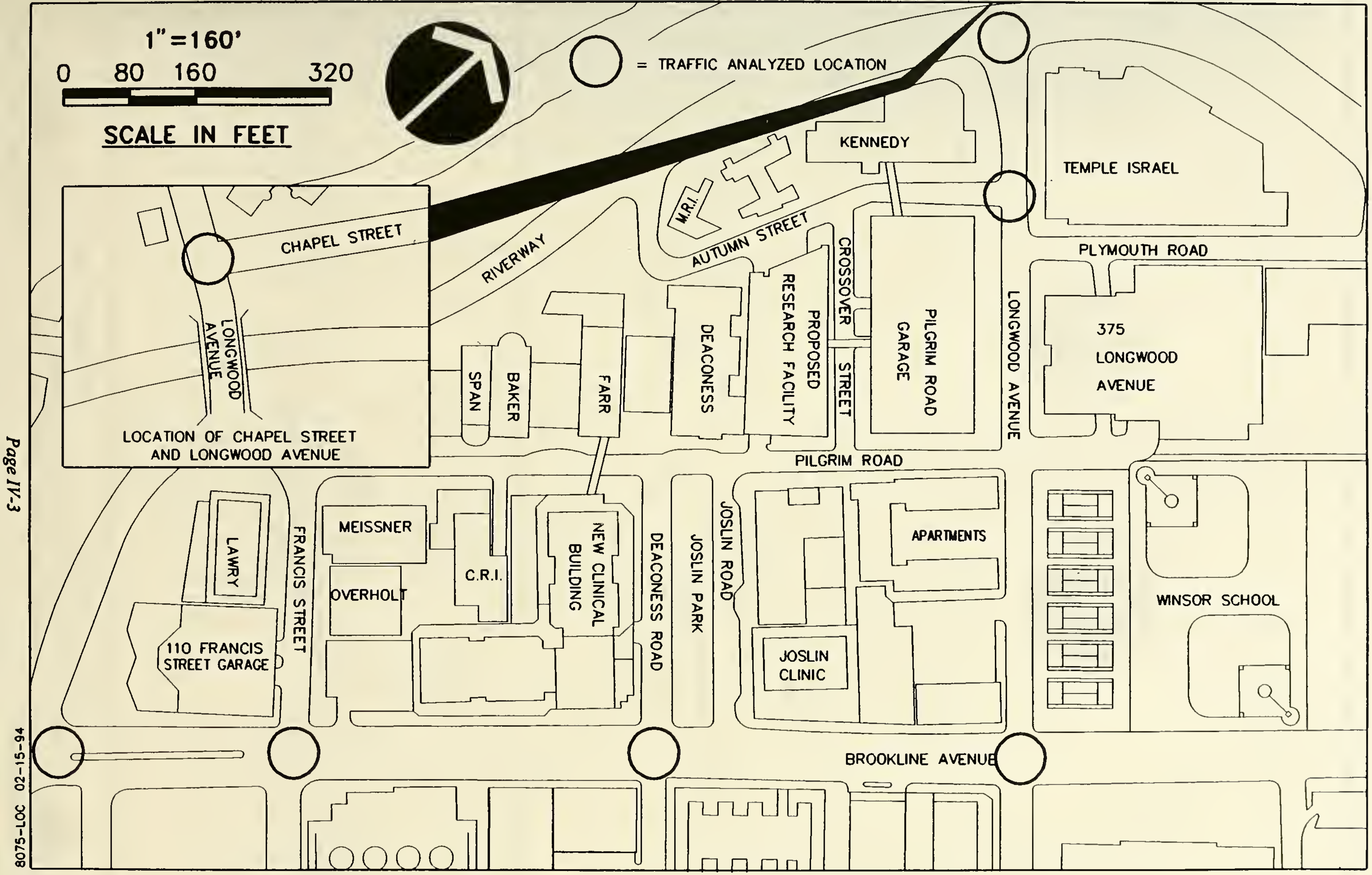

FIGURE IV.1-1
TRAFFIC STUDY AREA
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

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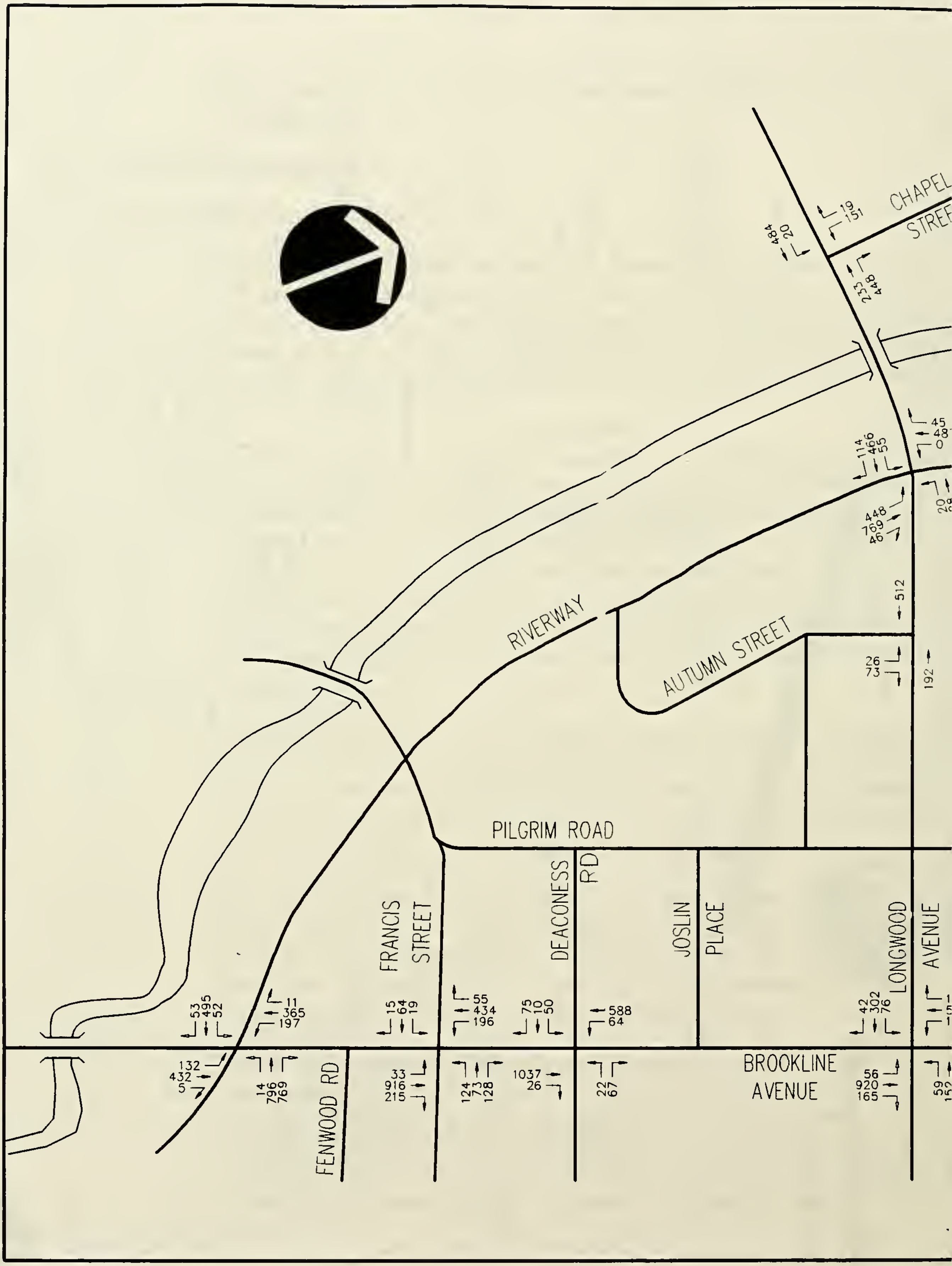
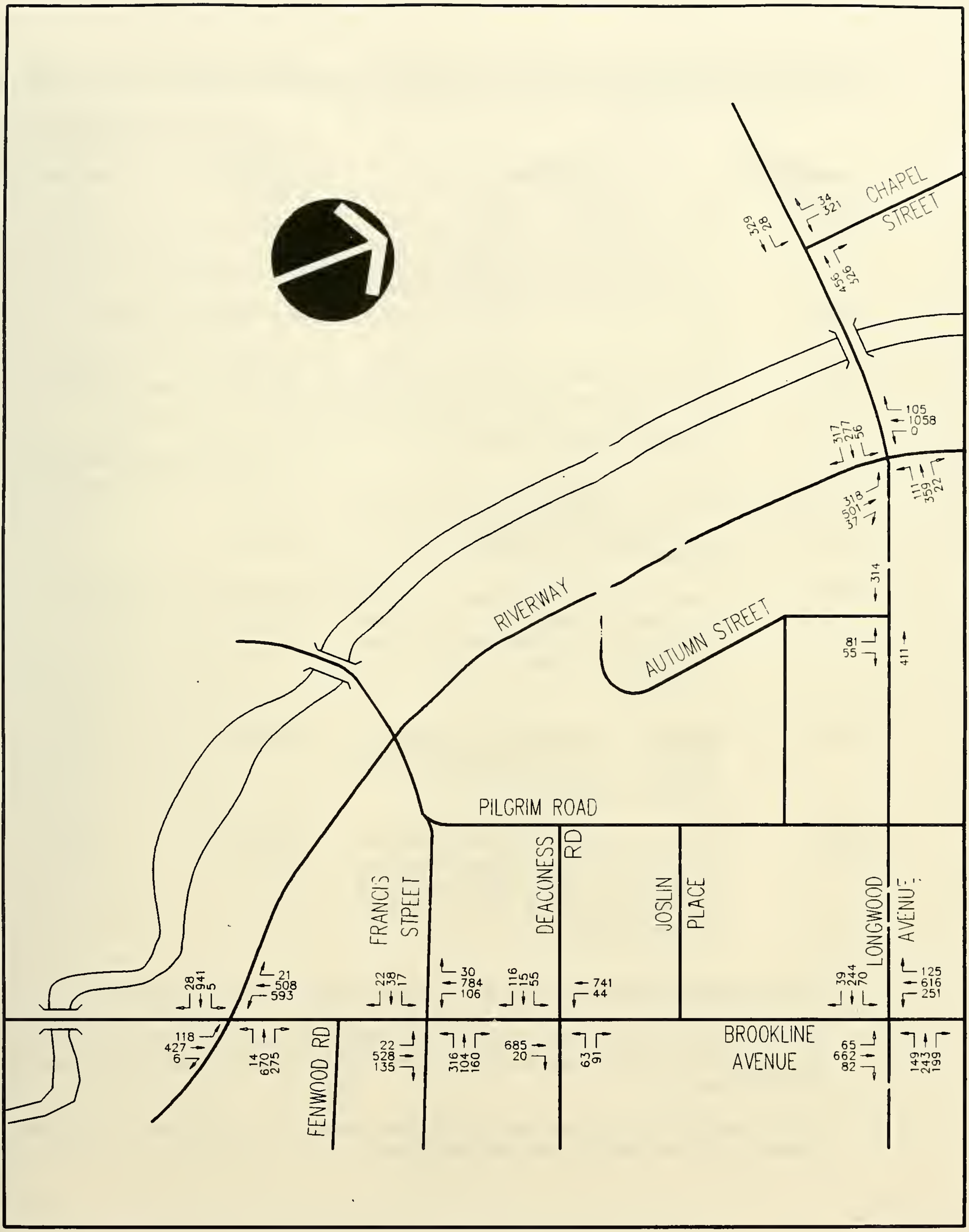


FIGURE IV.1-2
1993 EXISTING AM PEAK HOUR TRAFFIC VOLUMES
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

HMM Associates, Inc.
A Summit Company



NEDH-1-2 10-28-93

FIGURE IV.1-3
1993 EXISTING PM PEAK HOUR TRAFFIC VOLUMES
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

HMM Associates, Inc.
A Summit Company

Table IV.1-1: Level of Service (LOS) Designations*

Category	Description	Delay Range** (Seconds/Vehicle)	Reserve*** Capacity (Vehicles/Hour)
LOS A:	Describes a condition of free flow, with low volumes and relatively high speeds. There is little or no reduction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-5.0	400+
LOS B:	Describes a condition of stable flow, with desired operating speeds relatively unaffected, but with a slight deterioration of maneuverability within the traffic stream.	5.1-15.0	300-399
LOS C:	Describes a condition still representing stable flow, but speeds and maneuverability begin to be restricted. The general level of comfort begins to deteriorate noticeably at this level.	15.1-25.0	200-299
LOS D:	Describes a high-density traffic condition approaching unstable flow. Speeds and maneuverability become more seriously restricted, and the driver experiences a poor level of comfort.	25.1-40.0	100-199
LOS E:	Represents conditions at or near the capacity of the facility. Flow is usually unstable, and freedom to maneuver within the traffic stream becomes extremely difficult.	40.1-60.0	0.99
LOS F:	Describes forced flow or breakdown conditions with queuing along critical approaches. Operating conditions are highly unstable as characterized by erratic vehicle movements along each approach.	60.1 or greater	N/A

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* Source: Transportation Research Board, *Highway Capacity Manual*, Special Report 209, 1985.

** Delay ranges relate to the mean stopped delay incurred by all vehicles entering the intersection and do not consider the effects of traffic signal coordination. This criteria is intended for use in the evaluation of signalized intersections.

*** Reserve capacity refers to the unused capacity of the minor approach, on a per-lane basis. This criteria is limited to use in the evaluation of unsignalized intersections.

Table IV.1-2: Existing (1993) Levels of Service

Signalized Intersections

Location	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
Brookline Avenue/Riverway	F	127.0	F	74.2
Brookline Avenue/Francis Street	E	48.8	C	20.1
Brookline Avenue/Deaconess Road	B	8.8	C	15.0
Brookline Avenue/Longwood Avenue	C	16.4	C	17.1
Longwood Avenue/Riverway	E	45.8	D	35.4
Longwood Avenue/Chapel Street	B	8.0	C	20.0

Unsignalized Intersections

Location	AM Peak		PM Peak	
	LOS	RC*	LOS	RC*
Longwood Avenue/Autumn Street	B	368	C	243
All from Autumn Street				

*RC = Reserve Capacity

1.2 Existing NEDH Trip Characteristics

1.2.1 Employee Trip Characteristics

The current staff level at the Hospital is approximately 3,250 employees (Table IV. 1-3). Based upon an employee survey conducted by HMM Associates and the Hospital in the summer of 1993, the largest volume of employees arrive between 7:00 AM and 8:00 AM and depart between 5:00-6:00 PM. The Hospital estimates that approximately 70% of the total staff work during the day-shift (7:00 AM to 5:00 PM).

In July 1993, the Hospital conducted an Employee Transportation Survey of its day shift employees. According to the Survey (see Table IV.1-3), approximately 57% of all Hospital employees drive alone to work. In addition, another 3% of the surveyed employees carpool. The survey results, however, demonstrate a significant difference in travel behavior for employees involved in direct patient care, physicians and nurses and other employees. The heavy use of single occupant vehicles by physicians (80%) and nurses (79%) is consistent with work schedules of these medical professionals. Physicians are often required to work at multiple office locations during the day and need vehicle access. Nurses often arrive before 7:00 AM requiring the beginning of the employee's commute prior to commencement of MBTA service. In addition, many nurses work double shifts which result in nurses working through the evening shift as well. For these employees, alternative forms of transportation become difficult. Nurses do, however, have the largest percentage of car-poolers. An auto-occupancy survey taken at the Pilgrim Road Garage by HMM Associates in 1990, indicated a vehicle occupancy rate of 1.067 for Hospital employees who drive to work. It should be also noted that 2% of the Hospital employees utilize MASCO's vanpool services.

The Longwood Medical Area (LMA) is served by two branches of the MBTA Green Line and four regular MBTA bus routes. Each of these routes provides service to communities outside the LMA. The Hospital has recently increased efforts to encourage employee use of public transportation by selling and subsidizing MBTA T-Passes at a rate of 40% toward the cost of a pass. The 40% subsidy given by the Hospital, compared to 25 percent given by most LMA hospitals, is the highest subsidy among all LMA hospitals. What is particularly promising is the high percentage of technical/professional staff and other employees who use public transportation. These include employees who live in the City of surrounding communities, as well as administrative staff who work a more traditional 8-5 shift. For these employees, public transportation remains a viable option.

Table IV.1-3 Existing Modal Share

Mode	% Share				
	Physicians	Nurses	Tech./Prof.	Other	Overall
Drive Alone	80%	79%	54%	42%	57%
Carpool	1%	6%	1%	3%	3%
Vanpool	0%	2%	2%	2%	2%
MBTA	11%	11%	35%	46%	30%
MASCO Bus	1%	0%	0.5%	0.5%	1%
Walk	8%	2%	7%	6%	6%
Other	0%	0%	0.5%	0.5%	1%
					100%

Source: New England Deaconess Hospital, Employee Transportation Survey, July 1993.

1.5.2 Visitor and Outpatient Trip Characteristics

The estimated outpatient and visitor arrivals at the Hospital was 1,028 persons per weekday.* HMM used a 95% auto mode split to reflect a conservative estimate and does not fully account for outpatients who arrive via taxi or paratransit services. An automobile occupancy rate for visitors of 1.2, based upon observed data collected at the Pilgrim Road Garage, has been assumed for both the Pilgrim Road and 110 Francis Street Garages. Use of 1.2 as the auto occupancy rate results in a total of 814 daily one-way vehicle trips - 510 trips to 110 Francis Street and 304 trips to Pilgrim Road Garages. Visitors and patients begin arriving at the two garages at 7:00 AM at fairly low volumes, and visits remain constant throughout midday. For a typical day, approximately 15% of the daily visitors arrive/depart during the morning/evening peak hour. The resulting peak hour visitor trips by automobile are 122 arrivals and 12 departures during the AM peak hour with 12 arrivals and 122 departures during the PM peak hour.

The remaining 5 percent of visitors that use the transit/walk mode result in 51 trips arriving and 5 trips departing during the AM peak hour with 5 trips arriving and 51 trips departing during the PM peak hour.

1.3 Existing Parking

1.3.1 New England Deaconess Hospital Parking Supply

The Hospital maintains a total supply of 1,558 parking spaces, both on and off-campus. As shown in Table IV.1-4, there are 1,071 off-street parking spaces in the Hospital garages (Pilgrim Road and 110 Francis Street) located on the Hospital campus. Within the LMA itself, the Hospital leases 111 spaces at the MASCO Garage located at 375 Longwood Avenue. Currently, the Hospital allocates on-campus and LMA parking spaces in this order: patients and visitors; physicians and residents as well as second shift nurses; employees hired prior to December 1984 who were on the parking waiting list prior to August 1988; and senior management**. This policy also states that the grandfathered spaces are returned to patient/visitor use as employees retire

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* Sources: 1991 parking survey at Pilgrim Road Garage; and July 1992 parking receipts for 110 Francis Street garage.

** Senior management personnel comprise less than 3% of total Hospital employees; however, they require nearby, convenient parking to allow them to fulfill their daily job requirements which include attending meetings and completing management assignments at a number of Deaconess facilities located outside the LMA (see Comment 1.6 on page IX-8 for additional discussion).

Table IV.1-4 Existing Parking Supply and Assignments

Facility	Location	Total Spaces	Sublet Spaces[1]	NEDH Physicians[2]	NEDH Nurses[3]			NEDH Others	Visitors/ Visitors
					Day Shifts	Night Shifts	Eve/ Rotating Shifts		
1. Pilgrim Road Garage	On-Campus	761	170	175	142	249	112	269	74
2. 110 Francis Street	On-Campus	310	0	175	0	0	0	13	155
3. 375 Longwood Avenue	Within LMA	111	0	8	5	0	0	103	0
4. Peterborough Street	Nearby	120	33	0	18	0	38	87	0
5. 55 Yawkey Way	Nearby	100	0	0	0	0	53	31	0
6. 61 Prentiss Street	Nearby	10	0	0	0	0	0	11	0
7. 1255 Boylston Street	Nearby	30	0	0	20	0	0	6	0
8. 73 Brookline Avenue	Nearby	30	25	5	0	0	0	7	0
9. 900 Commonwealth Avenue	Nearby	35	0	0	0	0	0	33	0
10. One Brookline Place (Brookline)	Nearby	20	0	5	10	0	0	11	0
11. 286 Babcock Street	Nearby	32	0	0	0	0	0	28	0
		1558	228	386	170	249	203	602	229

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[1] Spaces sublet by Joslin Clinic and Anesthesia Associates.

[2] Not all physicians are on campus at the same time due to office and hospital schedules. If necessary, physicians cars are valet parked.

[3] 60% of Rotating Shift nurses are working during the day.

or resign. Currently, some 10 spaces/year are vacated and returned. This policy has been strictly adhered to since its inception and is continually monitored. As a result, the Hospital has not allowed new employees to park in the two on-campus garages since August 1988.

The remaining employees park at nearby spaces located off-campus. The majority of these are within walking distance, while others, such as those within the Fenway, in Brookline or at Boston University, require a short shuttle ride to/from the Hospital. The location of the parking facilities are shown on Figure IV.1-4.

The current staff at the Hospital includes approximately 3,250 employees, 2,275 of whom work during the day-shift. Table IV.1-5 shows the theoretical peak parking demand at 1,322 employee spaces.

The Hospital provides only 1,101 spaces for employees, a 221-space shortfall. However, it should be noted that this is a theoretical shortfall since many of the physicians utilizing on-campus spaces do not all arrive and depart on a daily basis, thus enabling the Hospital to successfully utilize a valet service. The remaining demand is not met by the Hospital, rather, existing employees are left with the options of paying commercial rates at other facilities or using transit. In order to encourage transit use, the Hospital has a very active program in place to reduce single occupancy vehicle demand, including restricting on-campus employee parking, increasing the cost for on-campus parking, and providing a 40% subsidy (the highest of any LMA institution) toward the cost of employee transit passes.

1.4 Transit

1.4.1 MBTA

As shown in Figure IV.1-4 and IV.1-5, the LMA is well served by the MBTA. The Riverside (D) Line, serving Longwood Station approximately one-third of a mile from the Hospital, runs west through Brookline and Newton to Riverside Station (near the junction of Routes I-90 and I-95), where park-and-ride facilities are provided. The Brigham Circle and Heath Street (E) Lines, serve Huntington Avenue along the eastern border of the LMA, with a stop at the corner of Huntington Avenue and Longwood Avenue which is less than one mile from New England Deaconess Hospital. Heath Street trains continue along south Huntington Avenue to the Jamaica Plain VA Hospital. Both branches operate seven days a week, from 5:30 AM until 12:45 AM. Service is scheduled to run at least every 10 minutes during most of those hours, although service is less frequent during late evening, early morning and weekend hours.

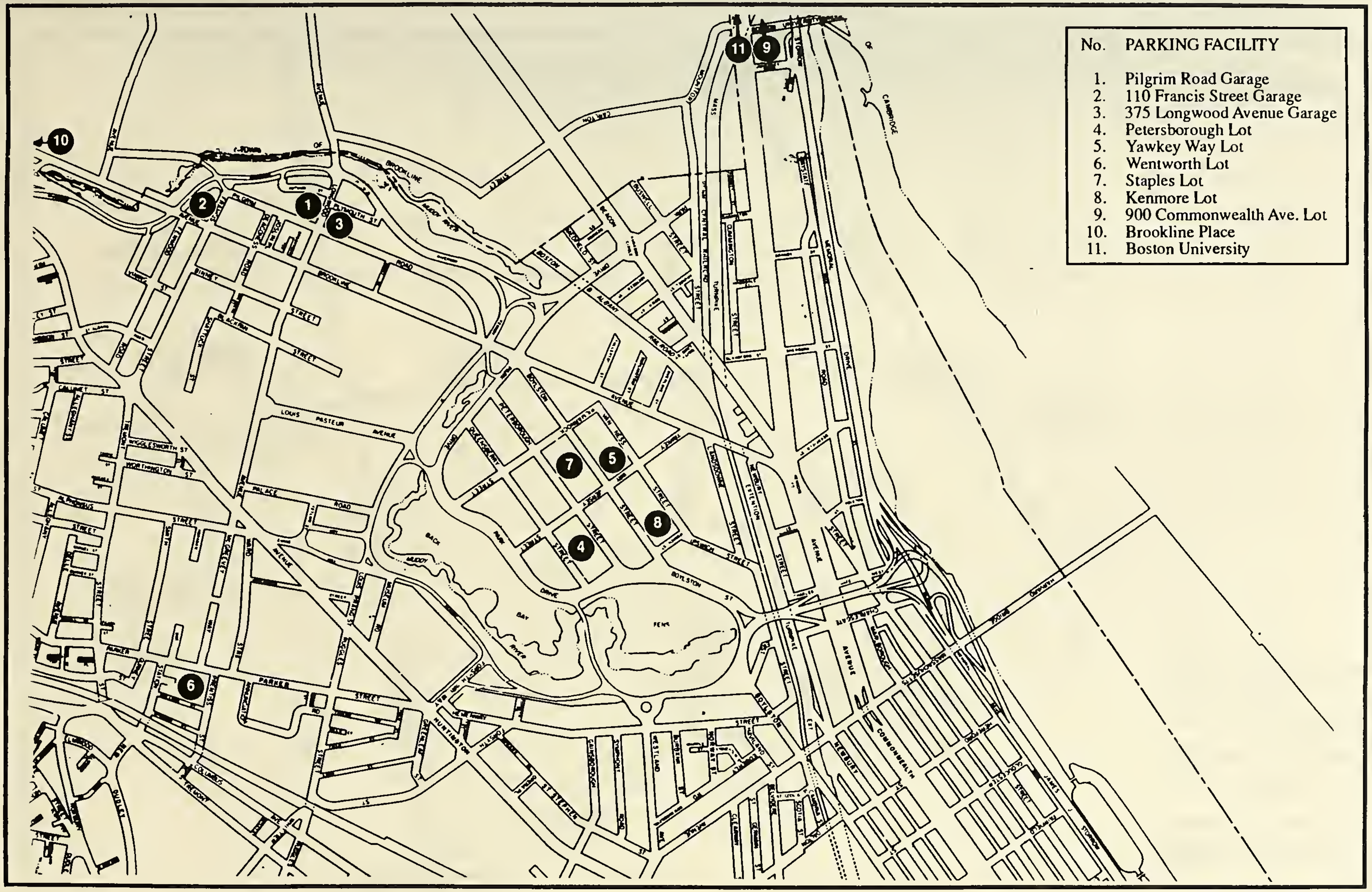

FIGURE IV.1-4
EXISTING PARKING FACILITIES
NEW ENGLAND DEACONESS HOSPITAL

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A Summit Company

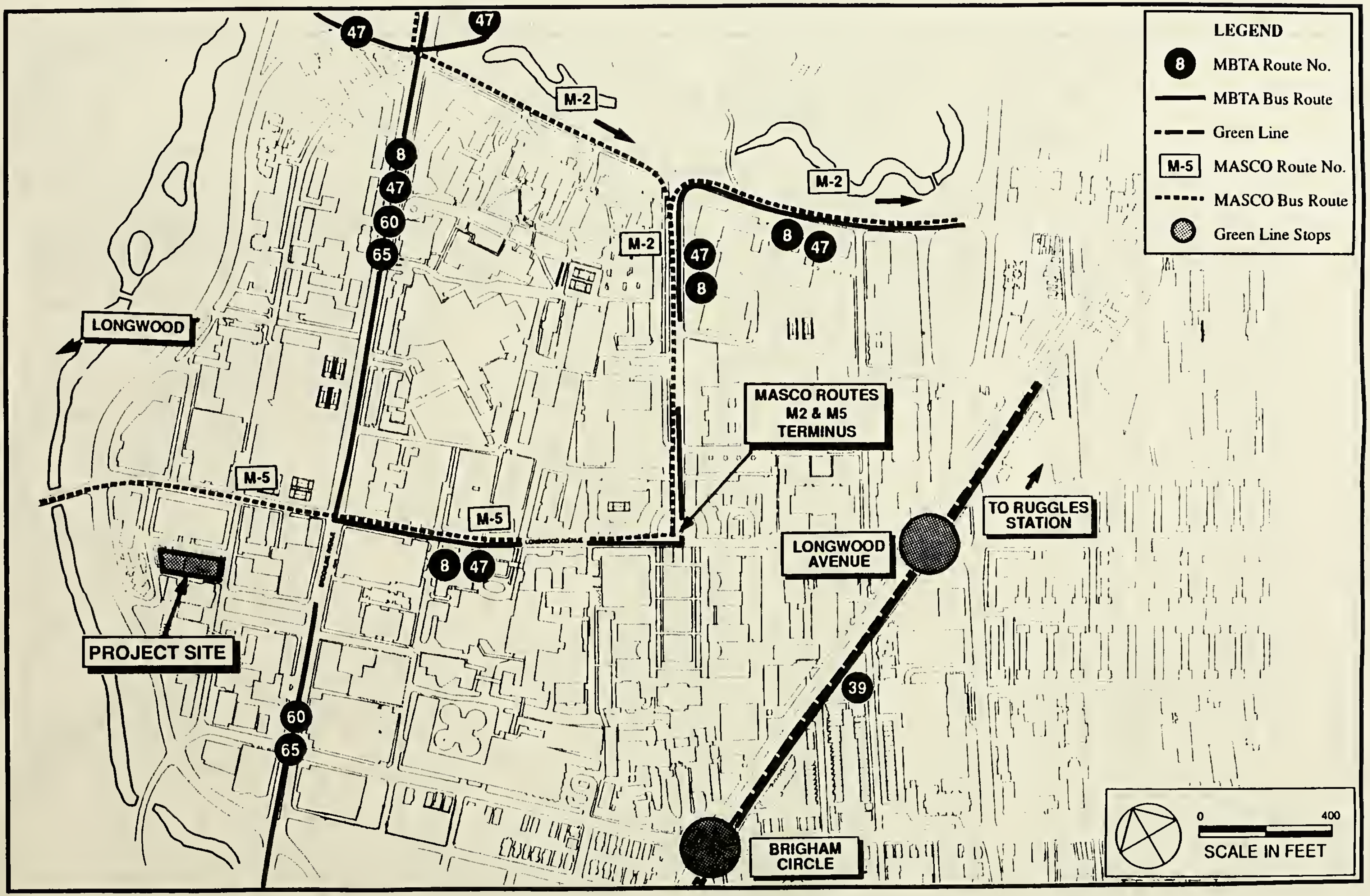
LEGEND
8 MBTA Route No.
MBTA Bus Route
Green Line
M-5 MASCO Route No.
MASCO Bus Route
Green Line Stops
47
47
M-2
8
47
60
65
M-2
M-2
47
8
8
47
LONGWOOD
MASCO ROUTES M2 & M5 TERMINUS
M-5
M-5
LONGWOOD AVENUE
TO RUGGLES STATION
LONGWOOD AVENUE
8
47
PROJECT SITE
39
60
65
BRIGHAM CIRCLE
0
400
SCALE IN FEET

FIGURE IV.1-5

Table IV.1-5 Existing Peak Parking Generation

	Employees						Visitors						
Condition	Full Time Employees	% Day Shift	Auto Mode Split	Auto Occupancy	Daily Auto's (One Way)	Turnover Rate (Utilization)	No. of Parking Spaces (Long Term)	Daily Visitors	Auto Mode Split	Auto Occupancy	Daily Auto's (One Way)	Turnover Rate (Utilization)	No. of Parking Spaces (Short Term)	Total Parking Spaces
	3250	70%	60%	1.067	1279	1.0	1279	1028	95%	1.2	814	3.5	233	1512

The MBTA bus service is provided by five bus routes that serve the study area. The routes serving the Hospital can also be seen on Figure IV.1-5.

- *Route 47* - Service between Central Station in Cambridge and Andrew Station via the Longwood Medical Area, the South End Medical Area, and Dudley Square (service every 20 minutes during peak periods).
- *Route 60* - Service between Chestnut Hill and Kenmore Station via Brookline Village, Cypress Street, and Brookline Avenue (service every 15 minutes during peak periods).
- *Route 65* - Service between Brighton Center and Kenmore Station via Washington Street, Brookline Village and Brookline Avenue (service every 20 minutes during peak periods).
- *Route 8* - Service between Harbor Point/UMass and Kenmore Station via Dudley Square and South End Medical Area (service every 20 minutes during peak periods).
- *Route 39* - Service between Forest Hills Station and Back Bay Station via Huntington Avenue (service every 5 minutes during peak periods).

1.4.2 MetroBus Service

MetroBus, a subsidiary of MASCO, operates two bus routes that provide fixed-route service to communities outside the LMA for affiliates of LMA institutions. Route M2, which serves Harvard Square and other Cambridge points along Massachusetts Avenue, provides a key service since it is not limited to rush hours. Route M2 operates every 10 minutes at rush hour, every 20 to 30 minutes at midday, and every hour at night and on Saturdays. Route M5, which serves parts of Brookline and Allston, runs every 17 to 34 minutes in the morning peak period (6:15 to 9:30 AM) and every 30 minutes in the afternoon peak period (2:45 to 7:15 PM).

1.4.3 Commuter Rail

There are currently two commuter rail lines which service the Longwood Medical Area: the Needham line and the Attleboro/Stoughton line. Both lines stop at Ruggles Station, located approximately one mile from the Hospital. During morning peak hours, the Needham line runs inbound trains approximately every 30 minutes, and during afternoon peak hours, trains run out to the suburbs approximately every 35 minutes. The Attleboro/ Stoughton line is less regular, with only three inbound trains during morning peak hours, but trains about every 20 minutes during the afternoon peak. Neither line offers any service to Ruggles Station on weekends and holidays.

1.5 Pedestrian Activity

1.5.1 Pedestrian Desire Lines

The BRA's PAD requested a qualitative analysis be presented to clarify pedestrian desire lines and the adequacy of the existing circulation system.

There is a great deal of pedestrian movement within the LMA. This traffic consists not only of people walking to work, school, and the various medical facilities, but also transit commuters traveling to and from the various transit stations.

The internal streets on the Hospital campus provide effective pedestrian routes to all New England Deaconess Hospital buildings. With the opening of the new Clinical Building in 1994, the Hospital will relocate its main entrance from Pilgrim Road to an area adjacent to Joslin Park. This will provide a more central entrance to the Hospital with improved access to Brookline Avenue, the LMA's major east-west spine, and improved linkage from Deaconess Hospital to other LMA facilities and services heavily utilized by Hospital personnel.

As illustrated in Figure IV.1-6, the Hospital's campus extends between Francis Street and Longwood Avenue, and between The Riverway and Brookline Avenue. The Clinical Facility is centrally accessed from Deaconess Road, which is conveniently located on the other side of Joslin Park from the Joslin Diabetes Center, an active user of Deaconess services. Other Hospital activities are generally accessed from either Pilgrim Road, Francis Street or Autumn Street. The Hospital's two parking garages are located on opposite sides of the campus, the 110 Francis Street Garage and Pilgrim Road Garage (adjacent to Longwood Avenue). The major pedestrian spine to access both garages is Pilgrim Road. This roadway, as more fully discussed in Chapter VI, Section 3.2, will be improved and enhanced as a pedestrian circulation street, between Deaconess Road and Francis Street, as a part of the Clinical Building project.

In addition to pedestrian travel to/from Hospital buildings and garages, and to/from other LMA facilities and services (for the most part on the other side of Brookline Avenue), employees, visitors and patients access the Hospital via public transportation (i.e., MBTA, bus or transit). Longwood Avenue and The Riverway are the pedestrian desire lines to the Longwood stop on the MBTA

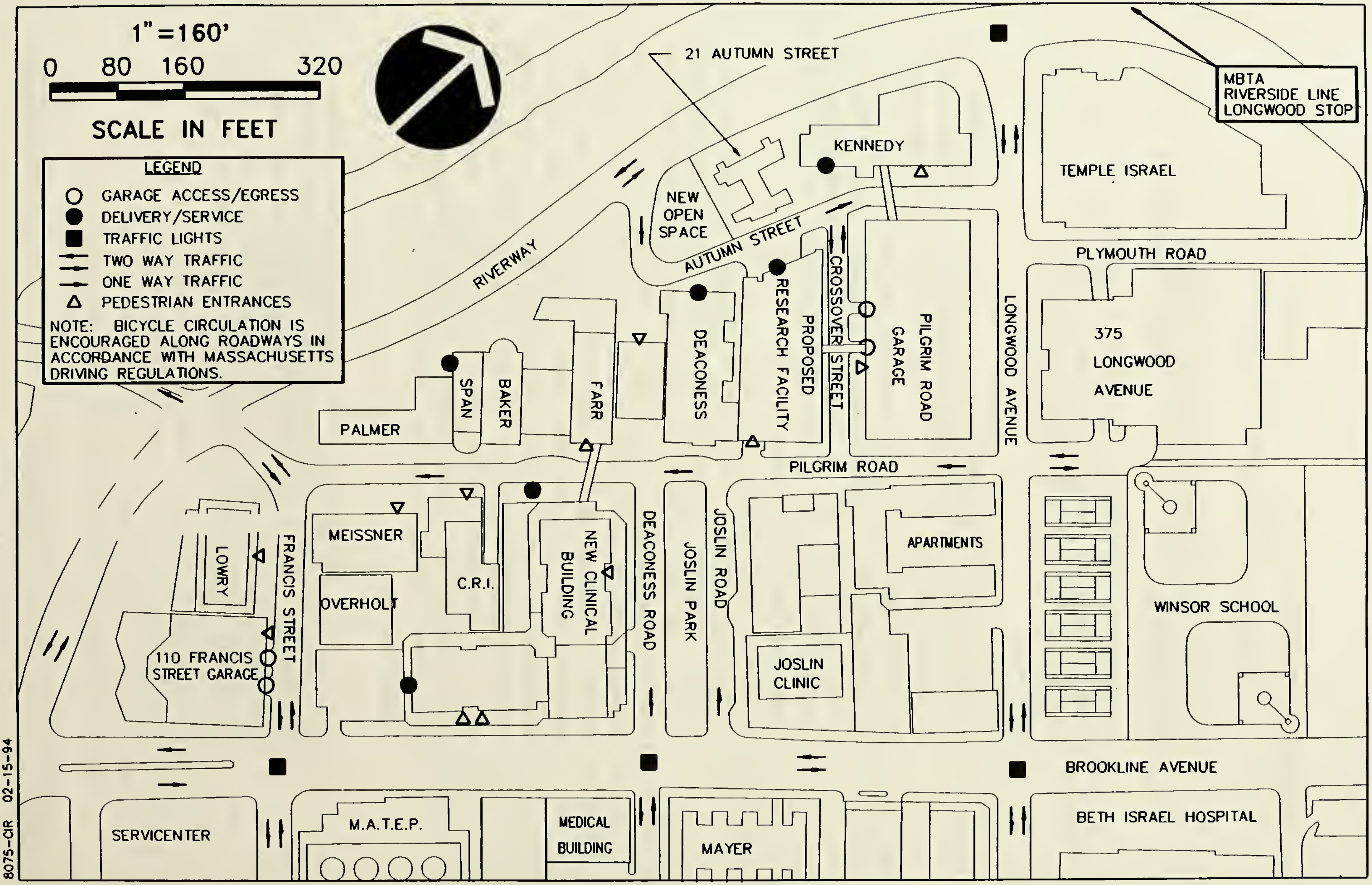

FIGURE IV.1-6
CAMPUS SITE CIRCULATION
NEW ENGLAND DEACONESS HOSPITAL

HMM Associates, Inc.

Riverside line. Deaconess Road and Francis Street provides direct access to MBTA bus stops on Brookline Avenue. The most difficult period for public transportation users is during the winter. While the Hospital continuously removes ice and snow to maintain its campus streets and sidewalk areas (even those owned by the City such as Pilgrim Road) during inclement weather, other public ways such as Longwood Avenue and Brookline Avenue are sometimes maintained less reliably by the City.

1.5.2 Pedestrian Volumes

Generally, in the morning and evening peak periods, pedestrian activity is related to employee commuting trips. However, activity remains consistently high during all three periods (AM Peak, Noon and PM Peak) because once people get to the LMA, there is a considerable amount of travel between institutions and buildings within the area.

Consistent with other studies completed for other LMA projects, the LMA is active with pedestrian movement, particularly at pedestrian crossing points, through the average weekday. For example, at the signalized Brookline Avenue/Deaconess Road intersection, 373 pedestrian crossings were recorded during the morning peak period (6:30 to 9:00 AM) and 417 during the afternoon peak period (2:30 to 6:00 PM), creating pedestrian crosswalk level of source (LOS) analysis results of LOS B during both AM and PM peak periods. This information was published by HMM in the Dana-Farber Cancer Institute's New Research Building DPIR/DEIR (EOEA #9452).

2.0 1998 NO-BUILD CONDITIONS

In accordance with MEPA's 5-year forecast requirement, the design year for this analysis is 1998. Forecasts of vehicular traffic for this design year takes into account traffic due to two sources:

- Background traffic growth due to developments located outside the study area, but contributing to the traffic network.
- Traffic due to other developments (under construction or approved) located within the study area affecting individual intersections.

The combination of both background and other development traffic, added to existing traffic volumes, constitutes the No-Build traffic forecast.

2.1 Background Traffic Growth

The background traffic growth rate due to developments located outside the study area was based upon two data sources. The first source was the *LMA Transportation Study* prepared for MASCO by Vanasse Hangen Brustlin, Inc. (VHB), in November 1987. The LMA Study's background traffic growth rate was 0.5% per year. This rate was based upon employment forecasts for Boston, Cambridge, and Brookline.

The second data source was the Beth Israel Hospital's New Clinical Center, *Final Project Impact Report (FPIR)* prepared by VHB in November 1992. The AM/PM peak hour manual counts in 1987 were compared to the AM/PM peak hour manual counts taken by VHB in 1991 and 1992.

After reviewing the above data sources, and discussing the results with MASCO, a background traffic growth rate of 1.0% per year was selected. This rate has also been used for the recently submitted *Massachusetts College of Pharmacy & Allied Health Sciences Project FPIR/FEIR (EOEA #9309)* and for the *Dana-Farber Cancer Institute DPIR/DEIR (EOEA #9452)* which was submitted in November 1993. This traffic growth rate is applied to all through-traffic movements on each arterial studied.

2.2 Other Development Traffic

Table IV.2-1 lists proposed development projects that are under construction or approved within the Project study area. The BRA and BTD requested that each of these projects be included in the No-Build analysis for the Project. Traffic conditions in the year 1998 were evaluated with the inclusion of these of these other developments (i.e., development independent of the Project). The trip generation for the other developments was obtained from the data sources cited in Table IV.2-1.

2.3 1998 No-Build Traffic Volumes and Operations

The combined background traffic growth and traffic from other developments were distributed throughout the study area roadway network in order to evaluate the 1998 No-Build traffic conditions. The vehicle trips from the other developments under construction or approved within the study area were incorporated as through traffic entering and exiting the major roads near the Site. The inclusion of the 1.0% background growth rate with these other development vehicle trips resulted in the 1998 No-Build traffic volumes. The 1998 AM and PM No-Build traffic volumes are shown on Figures IV.2-1 and IV.2-2.

Table IV.2-1: Other Developments Under Construction or Approved within the Study Area

	Development Name	Proposed Land Use(s)	Expected Completion Year
1.	Joslin Diabetes Center	Research & Clinical Facility 84,230 SF	1993 / 1994
2.	Brigham & Women's Hospital	Center for Women and Newborns 203,000 SF	1994
3.	New England Deaconess Hospital	Clinical Facility (Patient Care, Treatment Facilities) 330,000 SF	1994
4.	Beth Israel Hospital	Clinical Center (Medical, Retail, Clinical) 385,000 SF 700-710 space garage 172,000 SF	1995
		Research North (Research) 110,000 SF	1996
5.	Massachusetts College of Pharmacy and Allied Health Sciences	Research and Academic 172,000 SF	1998
6.	Harvard Institutes of Medicine	Biomedical Research 294,300 SF	1998
7.	Dana-Farber Cancer Institute	Research Building 238,320 SF 261 space garage	1998

Sources:

1. **Joslin Diabetes Center, *Research and Clinic Facility, FPIR,*** Ellenzweig Associates, Inc., September 1991.
2. **Brigham and Women's Hospital, *Clinical Support Facility, Transportation Access Plan, FPIR*,** Vanasse Hangen Brustlin, Inc., July 1991.
3. **NEDH Clinical Facility,** HMM Associates, Inc., January, 1991.
4. **Beth Israel Hospital, *Clinical Center and Research North, FPIR*,** VHB, Inc., November 1992.
5. **Massachusetts College of Pharmacy and Allied Health Sciences Project, *FPIR/FEIR*,** HMM Associates, Inc., June 1993.
6. **Harvard University, *Harvard Institutes of Medicine*, Draft Environmental Impact Report,** *VHB, Inc.,* September, 1993, and **Final Environmental Impact Report,** VHB, Inc., December, 1993.
7. **Dana Farber Cancer Institute, DPIR/DEIR** HMM Associates, Inc., November 1993 (final not yet submitted).

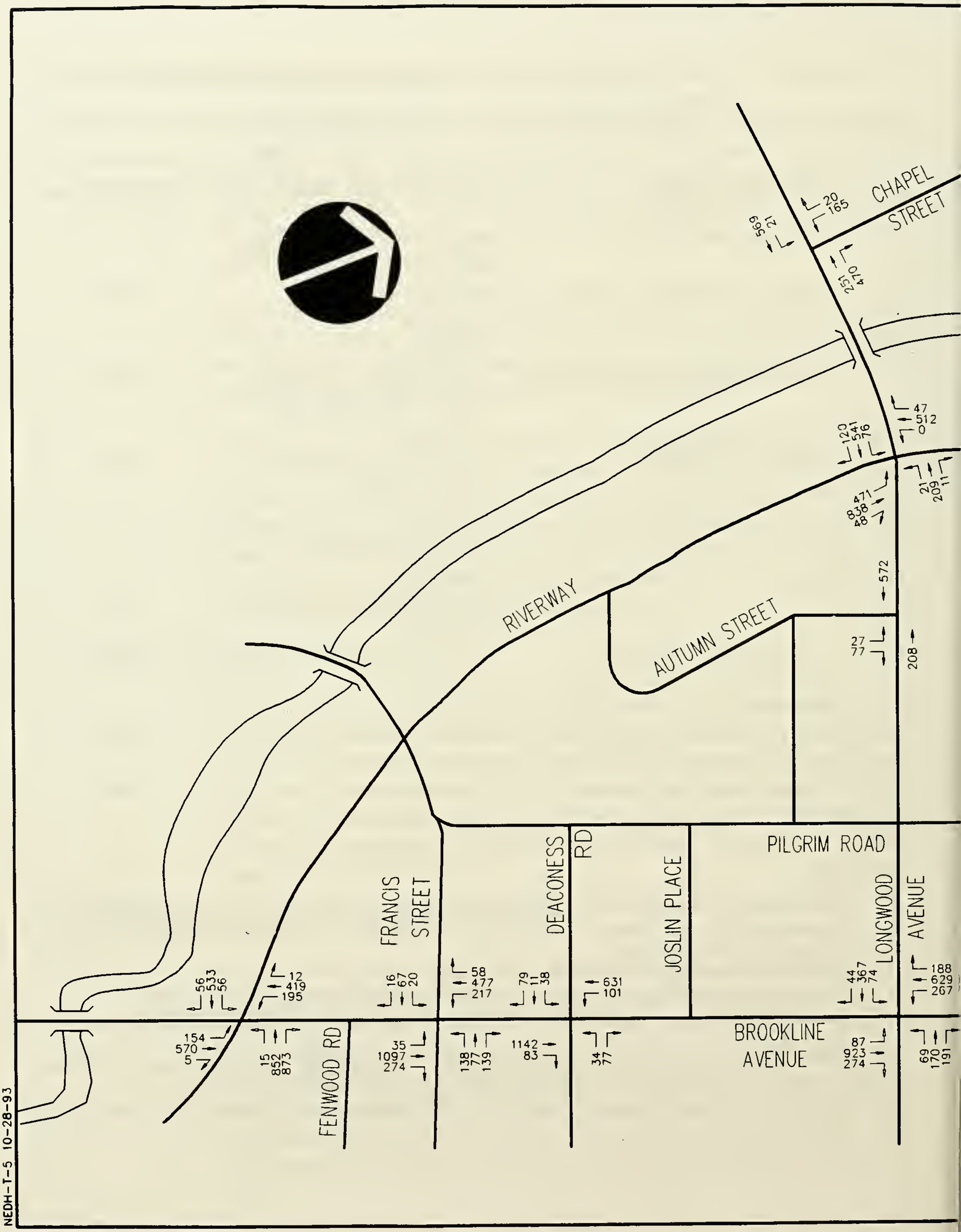

FIGURE IV.2-1
1998 NO-BUILD AM PEAK HOUR TRAFFIC VOLUMES
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITIES

HMM Associates, Inc.
A Summit Company

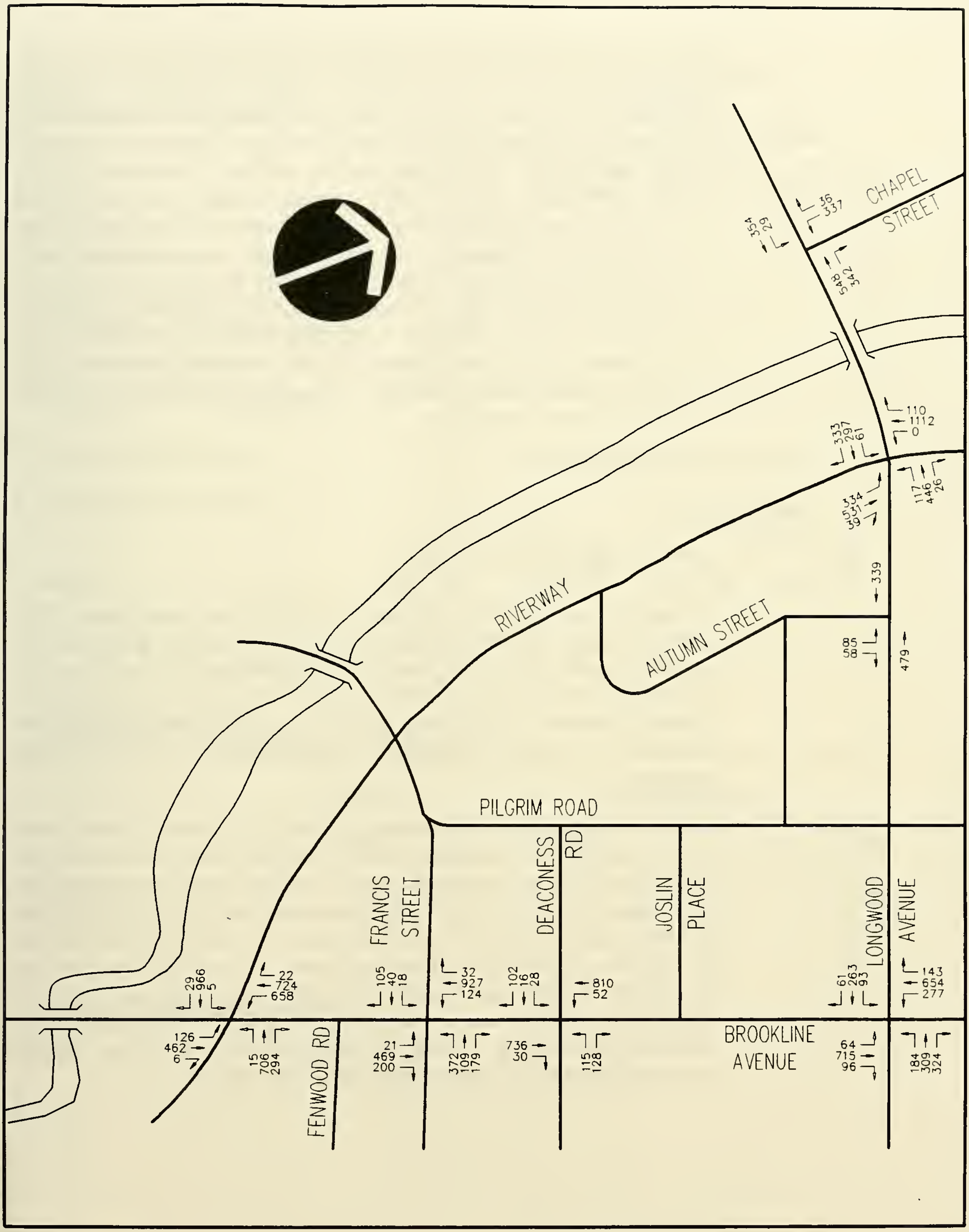

FIGURE IV.2-2
1998 NO-BUILD PM PEAK HOUR TRAFFIC VOLUMES
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

HMM Associates, Inc.
A Summit Company

As shown in Table IV.2-2, the continued growth of traffic in the LMA will result in two additional LOS F conditions in the AM peak hour. The most significant impact occurs at the intersection of Brookline Avenue/Deaconess Road where the existing LOS C will decline to LOS F with the construction of background projects. This intersection will continue to operate at LOS C during the afternoon peak. At Longwood Avenue's intersection with Riverway LOS will decline from E to F in the AM and D to F in the PM. Brookline Avenue's intersection with Longwood Avenue will decline to LOS D in the AM, while its intersection with Francis Street will decline from LOS C to LOS E in the PM. The Longwood Avenue at Chapel Street intersection in Brookline will also experience a decline in operating conditions, going from an existing LOS C with a 20-second delay in the PM peak hour to LOS D with a 30-second delay. However, it should be noted that in urban areas LOS D is considered acceptable.

3.0 1998 BUILD CONDITIONS

3.1 Trip Generation

3.1.1 Proposed Project

Vehicle trips to and from a site can be estimated by several means. The standard option (and the one required by MEPA review) is to use data published by the Institute of Transportation Engineers (ITE) in the manual entitled *Trip Generation* (5th Edition, 1991). This publication contains trip generation rates for a wide variety of land uses. These vehicle trip rates are obtained from nationwide studies and are normally suitable for design purposes.

The Project calls for the construction of 295,000 gsf of research space. Since the new facility will consolidate research from other parts of the campus and off-campus, the more appropriate means to define the trip generation would be based upon the number of new employees rather than using the size of the building to be constructed. It has been determined by the Hospital that the new building will result in 75 new employees. Since the Project is to be occupied by Research and Development (R&D) space, ITE Land Use Code 760 (Research Center - see Appendix B-2) was utilized in reference to the 75 new employee number. Using this approach, the new building has the potential to generate the gross trips shown in Table IV.3-1.

Table IV.2-2: 1993 Existing and 1998 No-Build Peak Hour Level of Service

Signalized Intersections

	1993 Existing				1998 No-Build			
	AM Peak		PM Peak		AM Peak		PM Peak	
Location	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Brookline Avenue/Riverway	F	127.0	F	74.2	F	*	F	*
Brookline Avenue/Francis Street	F	48.8	C	20.1	F	*	E	52.4
Brookline Ave/Deaconess Road	B	8.8	C	15.0	F	135.9	C	23.8
Brookline Avenue/Longwood Avenue	C	16.4	C	17.1	D	26.3	C	21.4
Longwood Avenue/Riverway	E	45.8	D	35.4	F	76.2	F	72.9
Longwood Avenue/Chapel Street	B	8.0	C	20.0	B	10.2	D	30.3

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* Delay exceeds three minutes

Unsignalized Intersections

	1993 Existing				1998 No-Build			
	AM Peak		PM Peak		AM Peak		PM Peak	
Location	LOS	RC	LOS	RC	LOS	RC	LOS	RC
Longwood Avenue/Autumn Street								
All from Autumn St.	B	368	C	243	B	315	D	188

Table IV.3-1: ITE Peak Hour Trip Generation*

	AM Peak Hour			PM Peak Hour			
	Enter	Exit	Total	Enter	Exit	Total	Daily
Gross Trips	43	9	52	8	45	53	359
Adjusted Net Trips	25	5	30	5	26	31	209

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* Based on modal share information.

An alternative to the ITE data is the use of site specific data based on actual employee travel patterns. As noted in Section IV.3-1.5, the Hospital conducted a survey of employees in 1993. The Hospital employee survey indicates peak hour rates of .326 during the AM peak hour and .179 during the 3-4 PM period. Application of the modal share data contained in Table IV.1-3 results in the trip generator estimates shown in Table IV.3-2.

Table IV.3-2 Site Generated Peak Hour Trips

	AM Peak Hour			PM Peak Hour			
	Enter	Exit	Total	Enter	Exit	Total	Daily
Drive Alone	14	0	14	0	7	7	84
Carpool	1	0	1	0	1	1	4
Vanpool	0	0	0	0	0	0	4
MBTA	7	0	7	0	4	4	44
MASCO Bus	0	0	0	0	0	0	2
Walk	2	0	2	0	1	1	10
Other	0	0	0	0	0	0	2

What is unique for this Project is the Hospital's decision to adopt and enforce a strict parking management policy. With this policy in effect, new employees, with a few exceptions (see Section IV-1.6) are not permitted to park on campus. Employees who do drive are assigned to off-campus parking, which the Hospital has continued to pursue. Thus, the Research Facility will not generate new trips to the LMA.

Off-campus parking is now leased on a monthly basis due to current market conditions. The Hospital is actively searching for convenient long term parking and will secure it as the need and opportunity arises. In addition, MASCO is conducting its own search to identify a location, or locations, that can be developed for permanent satellite parking for all member institutions including New England Deaconess Hospital.

Table IV.3-3 outlines the potential assignment of the additional 75 employees in a still to be identified off-campus parking facility. This facility will either be leased by the Hospital or be part of an overall MASCO strategy.

A fuller description of the trip generation rates in response to the Secretary's Certificate is contained in Chapter IX, Section 1.1.

Table IV.3-3: Future Parking Assignments

Facility	Location	Total Spaces	Sublet Spaces[4]	NEDH Physicians[5]	NEDH Nurses[6]			NEDH Others	Visitors/ Visitors
					Day Shifts	Night Shifts	Eve/ Rotating Shifts		
1. Pilgrim Road Garage	On-Campus	761	170	175	142	249	112	219	124
2. 110 Francis Street	On-Campus	310	0	175	0	0	0	13	155
3. MASCO	Within LMA	111	0	8	5	0	0	103	0
4. Peterborough Street	Nearby	120	33	0	18	0	38	87	0
5. 55 Yawkey Way	Nearby	100	0	0	0	0	53	31	0
6. 61 Prentiss Street	Nearby	10	0	0	0	0	0	11	0
7. 1255 Boylston Street	Nearby	30	0	0	20	0	0	6	0
8. 73 Brookline Avenue	Nearby	30	25	5	0	0	0	7	0
9. 900 Commonwealth Avenue	Nearby	35	0	0	0	0	0	33	0
10. One Brookline Place (Brookline)	Nearby	20	0	5	10	0	0	11	0
11. 286 Babcock Street	Nearby	32	0	0	0	0	0	28	0
12. TBD	Nearby	75	0	0	0	0	0	75	0
		1633	228	386	170	249	203	549	279

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[4] Spaces sublet by Joslin Clinic and Anesthesia Associates.

[5] Not all physicians are on campus at the same time due to office and hospital schedules. If necessary, physicians cars are valet parked.

[6] 60% of Rotating Shift nurses are working during the day.

3.2 1998 Build Traffic Operations

As noted in the DPIR/DEIR, the Project will not impact LMA traffic due to the fact that generated trips will be assigned to off-site spaces. This is demonstrated in Table IV.3-4.

3.3 1998 Build Parking Conditions

According to the Hospital planners, the Hospital is projected to employ 3,730 people in 1998. Using the same employee trip modes as existing projections, the demand for employee (long-term) parking spaces will increase by 147, and visitor short-term parking spaces by 11 without continued implementation of the Hospital's ongoing transportation demand management program. This ongoing program includes a Commuter Mobility Work Plan,* demand management incentives, traffic operation improvements, and parking management improvements. The following sections describe these incentives.

3.3.1 Parking Policy

It is the stated Hospital policy to achieve the following long term parking goals:

- patients and visitors are to be provided spaces on the Hospital campus;
- physicians and second shift nurses will park within the LMA; and
- general employee parking will be located outside of the LMA.

Currently, the only off-campus LMA garage utilized by the Hospital is the MASCO Garage at 375 Longwood Avenue. Because of its proximity, many of the grandfathered employees (those who began their employment before 1988) are parked here.

To reduce employee parking within the LMA, the Hospital has been steadily increasing the cost of employee parking. In October 1993, employee rates increased by an average of 15%. As shown in Table IV.3-5, the new weekly rates range from $7.00/week for a night-shift nurse to $23.00/week for day-shift employees. The off-campus parking rates range from $11.00/week for rotating shift employees to $14.00/week for day shift employees. These rates will increase by 8.6% in the Spring of 1994 and by another 8% in the Fall of 1994. In addition, the Hospital recently increased MBTA T-pass subsidies from 35% to 40%. To maximize vanpool ridership, thereby leading to

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* *NEDH Commuter Mobility Work Plan,* CommuteWorks (MASCO), November 1991.

Table IV.3-4: 1993 Existing, 1998 No-Build and Build Peak Hour Level of Service

Signalized Intersections	1993 Existing				1998 No-Build				1998 Build			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
Location	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Brookline Ave./ Riverway	F	127.0	F	74.2	F	*	F	*	F	*	F	*
Brookline Ave./ Francis St.	E	48.8	C	20.1	F	*	E	52.4	F	*	E	52.4
Brookline Ave./ Deaconess Rd.	B	8.8	C	15.0	F	135.9	C	23.8	F	135.9	C	23.8
Brookline Ave./ Longwood Ave.	C	16.4	C	17.1	D	26.3	C	21.4	D	26.3	C	21.4
Longwood Ave./Riverway	E	45.8	D	35.4	F	76.2	F	72.9	F	76.2	F	72.9
Longwood Ave./Chapel St.	B	8.0	C	20.0	B	10.2	D	30.3	B	10.2	D	30.3

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* Delay exceeds three minutes

Unsignalized Intersections	1993 Existing				1998 No-Build				1998 Build			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
Location	LOS	RC	LOS	RC	LOS	RC	LOS	RC	LOS	RC	LOS	RC
Longwood Avenue/ Autumn Street												
All from Autumn St.	B	368	C	243	B	315	D	188	B	315	D	188

Table IV.3-5 Weekly Parking Rate Structure

	Old Rates	Current Rates	Proposed Rates Spring 1994	Proposed Rates Fall 1994
On-Site:				
Day Shift	$20.00	23.00	$25.00	$27.00
Rotating Shift	15.00	17.25	18.75	20.25
Evening Shift	12.00	14.25	15.50	16.75
Night Shift	6.00	7.00	7.50	8.00
Off-Site:				
Day Shift	$13.00	$14.00	$15.00	$16.25
Rotating Shift	10.05	11.00	12.00	13.00

reductions in use of single-passenger vehicles, the Hospital has implemented a vanpool and riding program, in cooperation with CommuteWorks. Vanpool parking is provided at MASCO's nearby garage located at 375 Longwood Avenue. The Hospital policy on visitor/patient parking is designed to provide convenient, safe, low-cost parking at the two on-campus garages. A 50% discount on the maximum garage charge ($14.00 per day) is available to all patients and their families. This discount becomes effective after a stay of 5 hours. Patients and visitors may obtain this discount at the Valet Booth in the Hospital's Farr Building Lobby from 7:00 AM to 9:00 PM weekdays and in the Admitting Office on nights, holidays, and weekends. Families requiring additional discounts may make requests through the Social Services or the Commuter Services Departments.

A special maximum parking charge of $2.00 per visit is given to outpatients who require several repeat visits to complete their course of treatment, as well as patients who have appointments in Pre-Admission Testing, Outpatient Day Care, Same Day Surgery, and Ambulatory Surgery.

Free on-campus parking is provided to Blood Donors, Visiting Chaplains, Volunteers, and Trustees.

3.4 Transit

The Project is expected to increase public transportation use by approximately 7 passenger trips during the AM peak hour and by 4 during the afternoon peak. This reflects a modest increase in ridership which should easily be absorbed by the MBTA. No new passenger trips on MetroBus are expected during the peak hours.

3.5 Pedestrian Effects

The Project is expected to generate approximately 150 new pedestrian trips. Optimization of existing signals for future traffic levels will also include pedestrian timing changes to ensure the safe and efficient movement of pedestrian traffic in the study area.

3.6 Construction Management

The Hospital will negotiate a Construction Management Plan (CMP) with Boston Transportation Department which will address pertinent construction issues. The Construction Management Plan will include the following measures:

- Secure staging, fencing and bracing will be provided to protect nearby pedestrian traffic.

- Secure staging, fencing and bracing will be provided to protect nearby pedestrian traffic.
- Appropriate pedestrian walkways will be covered at nearby construction locations.
- The removal of construction material and equipment will be staggered over the course of the weekday.
- Designated truck routes for the removal of construction equipment will be clearly defined.
- The arrival and departure times of construction workers will generally be during the off peak hours of commuter traffic.
- No on site parking for construction workers.

4.0 TRANSPORTATION MITIGATION

The Hospital's mitigation program is being formalized through a Transportation Access Plan (TAP) Agreement to be negotiated between the Hospital and the City of Boston Transportation Department. The implementing party, regulatory agency, and implementation timing of the mitigation are discussed in a Draft Section 61 Format contained in Appendix J.

4.1 Traffic Mitigation

4.1.1 Commuter Mobility Program

To accommodate the new person-trips generated by the Project, the Hospital will continue and augment its existing program of parking management, demand reduction and commuter mobility measures, which together will constitute a Commuter Mobility Program. Such Commuter Mobility Program will be administered in cooperation with the efforts of the Longwood Medical Area Transportation Management Organization (CommuteWorks), a joint venture of the institutions in the Longwood Medical Area (LMA), operated under the auspices of MASCO.

The Hospital endorses the aims of CommuteWorks to accommodate all patients in and visitors to the LMA in reasonably priced off-street parking in close proximity to the patients/ visitors' destinations; to encourage the use of transit and ridesharing by all employees in the LMA; to minimize Hospital-generated traffic impacts in the Fenway/Kenmore/Mission Hill area through such means as allocation and pricing of employee parking; and to improve traffic flow through the LMA by such measures as signage, striping, signalization, removal of on-street parking spaces, and other generally recognized engineering solutions.

The goals of the Commuter Mobility Program will be:

(i) To maximize the use of public transportation and ridesharing by persons working at the Hospital.

(ii) To make available to all workers in the LMA improved access to mass transit and ridesharing services, through cooperative efforts with other institutions in the LMA.

(iii) To foster, through cooperative efforts with local and state government, improvements in transportation facilities, programs and services.

The specific objective of the Commuter Mobility Program shall be to achieve a rate of 20% for daytime medical personnel and 50% for all other staff commuting to work by means other than singly-occupied automobile.

4.2 Parking

In order to promote the objectives stated above, the following measures will be taken in the management of Hospital parking.

4.2.1 Employee Parking Rates

Rates for employee parking will be structured so as to encourage employees to use economical commuting options available to them which make driving alone less attractive than ridesharing or taking public transportation. To further this policy, the Hospital will, beginning in October 1994:

(i) At all facilities owned, leased or operated by the Hospital within the LMA, charge at least as much for employee parking as the average charged by other hospitals for similar employee parking at other LMA facilities.

(ii) Charge significantly more for parking located on or near the Project site than for remote parking.

4.2.2 Patient/Visitor Parking Rates

Parking will be made available to visitors and patients on a priority basis in facilities closest to the Project site.

4.2.3 Vanpool Parking Spaces

A reserved parking space in a preferred, convenient location will be guaranteed for any vanpool which includes three or more employees of the Hospital at a discount of 50% from the rate usually charged at that location.

4.2.4 Parking Allocation

(i) Assignment of parking spaces will take into consideration such criteria as distance of employee's home from the Project site and from MBTA subway or commuter rail lines and hours of work.

(ii) The Hospital will assign off-site parking in a manner consistent with the goal of minimizing traffic within and through the LMA, Mission Hill, and Fenway/Kenmore areas.

(iii) The Hospital will clearly advise employees at least annually of all criteria used in assigning off-site parking.

4.2.5 LMA Transportation Strategy Committee

The Hospital will continue to play an active role in the LMA transportation strategy committee, with the aim of acting collectively in setting parking policies to achieve area-wide transportation goals, through such measures as reduced parking subsidies and joint management of off-site parking facilities.

4.2.6 Satellite Parking

The Hospital will work with LMA institutions, BTD, and regional agencies to develop satellite parking facilities and shuttle services for the use of persons employed in the LMA. If and when such satellite facilities are developed, the Hospital, in cooperation with the manager of such facilities, will charge significantly less for parking at satellite locations than for parking located within the LMA.

4.3 Ridesharing

The Hospital shall promote ridesharing in the form of carpools and vanpools, by persons employed both on the Project site and elsewhere in the LMA. To that end, the Hospital shall:

(a) Provide computerized carpool/vanpool matching programs in coordination with the LMA Transportation Management Organization (TMO), utilizing surveys of Hospital's employees and computer-based matching techniques.

(b) Participate in joint ridesharing programs with other institutions within the LMA.

(c) Provide in a monthly newsletter promotional materials to inform employees and aid them in ridesharing.

(d) No less than once every year, co-sponsor in cooperation with Commute Works and other LMA institutions, a "Transportation Day" during which transit alternatives will be promoted and opportunities afforded to enlist employees in ridesharing programs, including those at all off-campus facilities.

(e) Provide promotional materials to the Hospital's employees, and promote carpooling and vanpooling by the installation of transportation information literature racks in common areas at both on-campus and off-campus locations, articles in the Hospital's newsletters, and other appropriate means.

(f) Continue to convey information about transit and ridesharing alternatives to new employees through the employee orientation process.

(g) Support the development of CommuteWorks' carpool/vanpool matching and MetroBus transit services.

(h) Encourage use of carpools through economic incentives.

(i) Work with MASCO to investigate the feasibility of discounting parking rates at remote facilities for carpools.

(j) Support development of and participate in a "guaranteed ride home" program for carpoolers and vanpoolers.

4.4 Transit

(a) The Hospital will provide an on-site location for transit pass sales.

(b) The Hospital will continue its program of subsidizing the cost of MBTA transit passes, which subsidy is currently 40%, for employees and staff of the Hospital.

(c) The Hospital will continue to require that employees who purchase subsidized MBTA passes surrender their commuter parking permits.

(d) The Hospital will coordinate with CommuteWorks, the Massachusetts Bay Transportation Authority (MBTA), BTD, and other agencies and employers to encourage the MBTA to institutes programs facilitating the bulk purchase of tokens or tickets through means other than monthly passes. If a financially feasible program is instituted, and can be managed with reasonable efforts by the Hospital, the Hospital will participate.

4.5 Pedestrians and Bicyclists

(a) Pedestrian maps and signage will be installed which provide clear information regarding location of hospital facilities and pedestrian routes.

(b) The Hospital will provide ample, secure, protected, convenient, and free bicycle parking.

(c) The Hospital will provided access to locker space and shower facilities to all employees and staff of Hospital who commute to work by bicycle.

4.6 Construction Management Plan

The Hospital shall prepare a Construction Management Plan which details measures to insure the maintenance of existing levels of service on adjacent roadways during the construction of the Project and to minimize disruption at neighboring residential sites, and shall submit said plan to the City of Boston Transportation Department (BTD) for approval. Such approval shall be obtained prior to the Hospital obtaining any building permit for the Project from the City of Boston Inspectional Services Department (ISD). It is understood by the Hospital that the development of a Construction Management Plan is a pre-condition to the issuance of a building permit for the Project by ISD.

The Construction Management Plan shall include, but not be limited to, measures dealing with: proposed street occupancies; use of tower cranes; sidewalk occupancies or obstruction of pedestrian flow; materials staging; transportation and parking for construction workers; hours of construction work; materials delivery.

4.7 Transportation Coordinator

The Hospital shall designate a transportation coordinator who shall cooperate with the BTD in the execution and monitoring of the obligations set forth in the TAP Agreement.

4.8 Regional Transit Improvements

MASCO has been participating in the ongoing analysis of the feasibility of constructing a circumferential transit system linking the existing major transit lines outside downtown Boston. As presently envisioned, it would provide direct service between Boston, Brookline, Cambridge, Somerville, and Chelsea. The effect of this ring of transit service would be to support existing employment centers and to help create new ones, and to provide attractive transit options for residents of the inner neighborhoods and communities, as well as the suburbs, for their daily commute to work.

The circumferential transit system would be a major benefit to the LMA, to its employees, patients and neighbors. In recognition of this importance, (MASCO) has founded the Circumferential Transit Employers Coalition (CTEC) to support planning efforts for this system. While the full system is many years away, MASCO's current circumferential planning efforts in the Medical Area are focused on improvements to transit services and other shuttle and high occupancy vehicle (HOV) services that can be accomplished in the short term. In the interim, these improvements would help achieve some of the benefits anticipated by better transit service to this important employment area in Boston.

MASCO is also encouraging the timely funding of the studies needed to evaluate the feasibility of the circumferential service as part of the Commonwealth's "Transportation Plan for the Boston Region" and the "Program for Mass Transit" so that this Project can be in line to secure funding in the Federal authorizations expected in 1996. These studies would be used to establish the costs and benefits status of the service, evaluate preferred alignments and types of vehicles, and identify a phased implementation approach.

4.9 Summary and Conclusions

The Hospital will continue to implement its transportation demand management program designed to reduce single occupancy vehicle use by its employees. The plan includes increased transit subsidies, the successful CommuteWorks program, parking validation for patients, and a gradual reduction in the supply of on-campus parking available for employees. The program has, to date, resulted in the Hospital having the highest transit subsidy in the LMA, and a continued increase in the cost of on-campus employee parking. By 1998, the Hospital anticipates significant improvements in modal share and vehicle occupancy, thus limiting demand for parking. The Hospital will not, in any case, increase its on-campus parking supply.

With the above measures in place, and enforced through the TAP Agreement, the Hospital will experience a significant increase in transit ridership and vehicle occupancy rates. It is New England Deaconess Hospital's stated policy that on-campus parking be restricted to patients, visitors, physicians, second-shift nurses and senior management. All other employees park outside of the LMA. The Hospital will continue to use space outside of the LMA to serve parking demand in 1998. At the present time the space is identified as being the same locations as currently leased or owned by the Hospital, and at a still to be determined location. However, it is quite possible that by 1998 MASCO will have identified and developed one or more centralized satellite locations for use by all LMA institutions.

V. ENVIRONMENTAL PROTECTION COMPONENT

V. ENVIRONMENTAL PROTECTION COMPONENT

The BRA's Preliminary Adequacy Determination (PAD) on the DPIR and Certificate of the Secretary on the DEIR identified additional technical information related to shadows, daylight, solid and hazardous waste, and noise impacts to be provided in the FPIR/FEIR. This additional information is presented below.

1.0 SHADOW ANALYSIS

1.1 Introduction

The BRA's PAD requires examination of shadow impacts from the Project with the addition of the cooling towers on a portion of the roof of the Pilgrim Road Garage during the vernal equinox (March 21) at 3:00 PM, during the summer solstice (June 21) at 6:00 PM, and during the winter solstice (December 21) at 3:00 PM. In addition, the BRA suggested that the vernal equinox (March 21) shadows at 5:00 PM be analyzed to further identify any potential impacts from the cooling towers on the open space to the east of Longwood Avenue.

In addition, the DEIR Certificate requires that potential mitigation from the increase of shadows on the park land vegetation on the Riverway Park be discussed in the FEIR.

1.2 Cooling Towers on a Portion of the Roof of the Pilgrim Road Garage

In order to assess the shadow effects from the cooling towers on a portion of the roof of the Pilgrim Road Garage, the worst-case scenarios were modeled for December 21 at 3:00 PM (Figure V.1-1) and March 21 at 3:00 PM (Figure V.1-2). As these figures (and Figure V.1-3 for March 21 at 5:00 PM) show, the cooling towers will create only a slight increase in the shadows on the Longwood Avenue facade and roof the building at 375 Longwood Avenue during these time periods. For other time periods, the shadows from the cooling towers will not extend beyond the roof of the Pilgrim Road Garage.

1.3 Vernal Equinox (March 21) at 5:00 PM

The late afternoon spring shadow diagram (Figure V.1-3) shows that the Project including the cooling towers on the Pilgrim Road Garage will lead to a slight increase to the already substantial shadow on the corner of Longwood Avenue and Pilgrim Road, and will increase the existing shadow on Crossover Street.

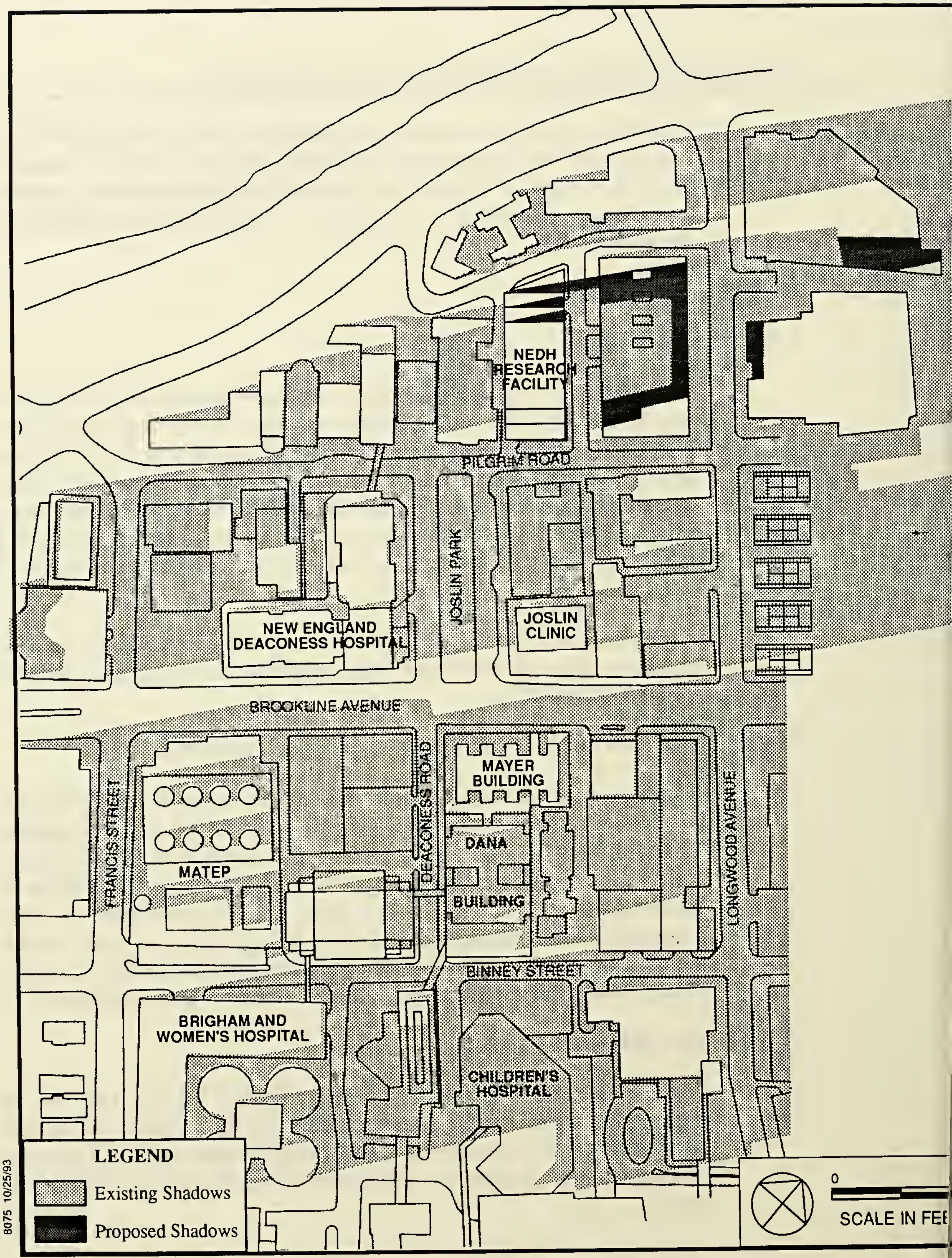
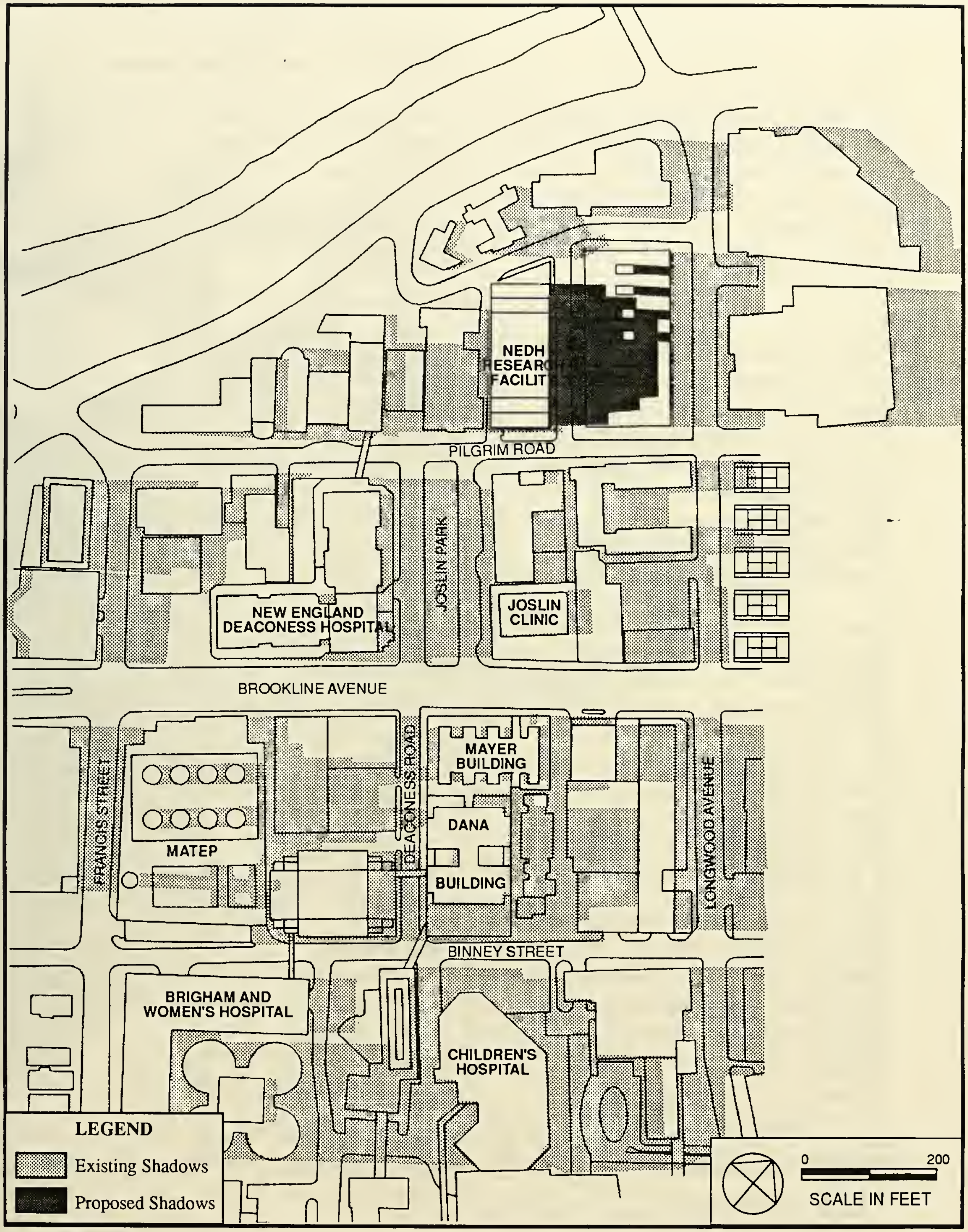


FIGURE V.1-1
DECEMBER 21, 3:00 PM SHADOWS
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

HMM Associates, Inc.
A Summit Company



8075 10/27/93

FIGURE V.1-2
MARCH 21, 3:00 PM SHADOWS
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

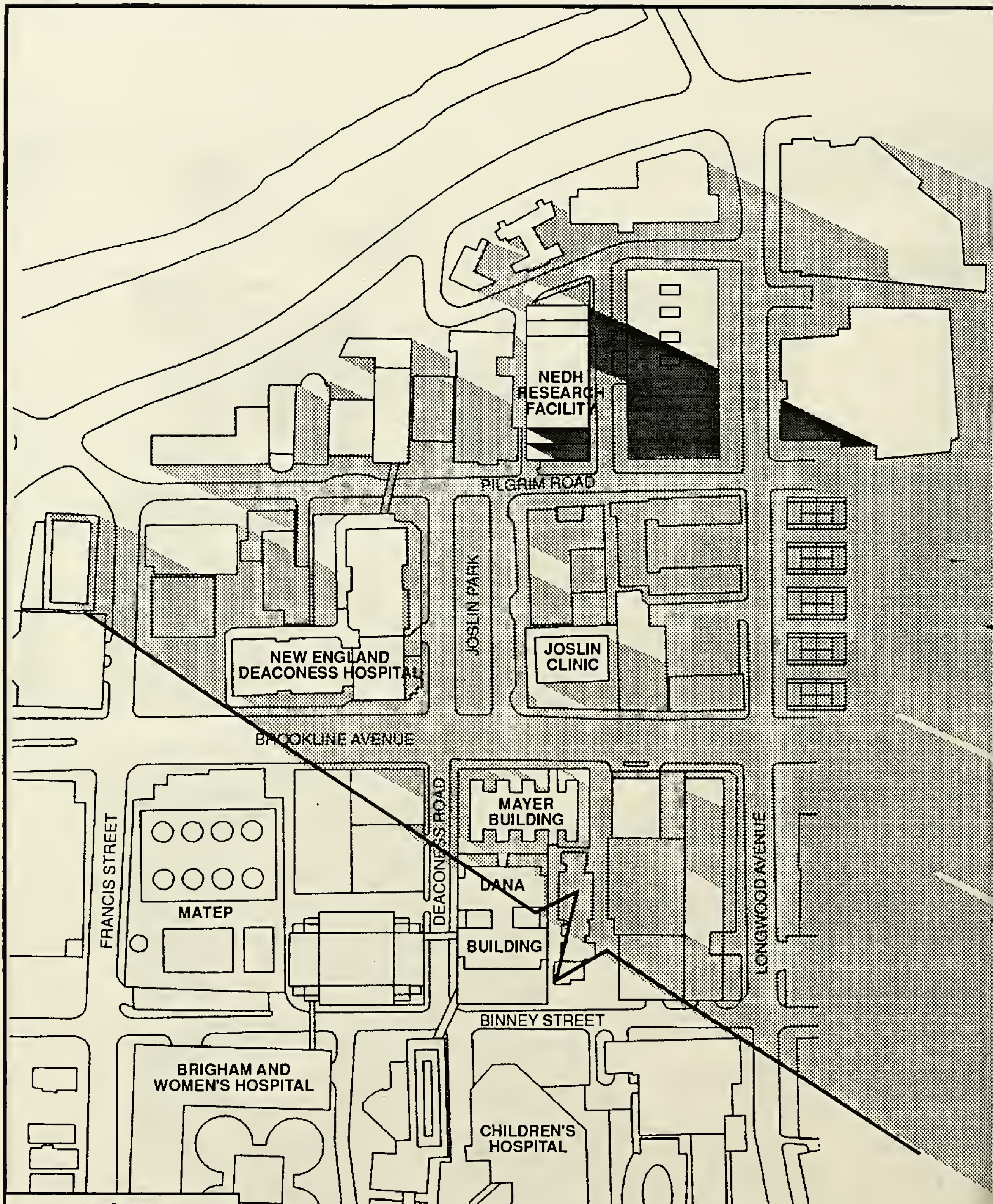


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FIGURE V.I-3
MARCH 21, 5:00 PM
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

HMM Associates, Inc.
A Summit Company

1.4 Summer Solstice (June 21) at 6:00 PM

The late afternoon summer shadow diagram (Figure V.1-4) shows that the Project with the cooling towers in place will create new shadows on the roof of the Pilgrim Road Garage and extend the existing shadows on Crossover Street and Pilgrim Road. In addition, there will be a slight increase to the existing shadow on the edge of the Windsor School open space east of Longwood Avenue.

1.5 Effects of Additional Shading on Vegetation in Riverway Park

The effects of an increase in shadow associated with the proposed Project on some vegetation within the Riverway Park has been further analyzed based on comments outlined in the Secretary's Certificate on the DEIR. Specifically, the effects of new shadows cast during the Autumnal Equinox (September 21) and the Winter Solstice (December 21) during the time periods of 9:00 a.m. to 12:00 noon, have been examined using the shadow analysis results presented in the DPIR/DEIR and in this section. An inventory was conducted of the vegetation in the area of the Riverway Park to be affected by new shadows. This investigation was conducted by an HMM botanist on January 31, 1994.

The Riverway Park is best described as a riparian park dominated by mature native trees and mixed shrubs. The Muddy River flows through the center of the park. Individual plants were identified to genus and species, where possible. In a few instances complete identification to species was not possible due to seasonal constraints; absence of flowers and leaves. The dominant vegetation identified within the affected area includes northern red oak (*Quercus rubrum*) which comprises approximately 80% of the overstory and American beech (*Fagus grandifolia*) which comprises approximately 10%. Individual specimens of pin oak (*Quercus palustris*), black cherry (*Prunus serrotina*) and tree of heaven (*Ailanthus altissima*) were also noted.

The understory is poorly developed. This is most likely attributable to the dense cover afforded by the oak and beech trees. The area is dominated by chokecherry (*Prunus virginiana*) comprising approximately 30% of the strata, and honeysuckle (*Lonicera sp.*) comprising approximately 10%. Other shrubs identified include crabapple (*Malus sp.*), alder buckthorn (*Rhamnus frangula*), hawthorn (*Crateagus sp.*) white ash (*Fraxinus americana*) and elderberry (*Sambucus canadensis*).

The herbaceous component is sparsely vegetated as a result of seasonal constraints. Evidence of rough stemmed goldenrod (*Solidago rugosa*) and bramble (*Rubus sp.*) were noted.

The dominant plant species identified are tolerant of certain parameters that can otherwise affect growth. These parameters include temperature, shade, and pollution. Fluctuations in these parameters are common in city settings.

As described in the DPIR/DEIR, during the Autumnal Equinox at 9:00 AM, new morning shadows resulting from the proposed project will extend across portions of Autumn Street, the MRI and apartment buildings, and a section of the Riverway (Figure V.2-13). By noon (Figure V.2-15), the new shadow has moved away from the Riverway Park.

During the Winter Solstice, shadows reach their peak lengths due to low solar altitude angles. As a result, many of the open areas around the project site including the Riverway Park, are already shaded by the existing buildings (Figure V.2-19). Morning shadows from the proposed building marginally extend the existing shadows across Autumn Street and the Riverway Park.

The extension of the existing shadows will affect a small area of Riverway Park vegetation for less than 3 hours. The basis for this analysis of impacts focuses on the growing season of the Boston area. According to the U.S. Department of Agriculture,[1] the growing season (based on soil temperatures) for the Boston area extends from the end of March to October. During this time frame, plant growth is minimal to non-existent. This time frame approximates the time periods of fall and winter which are initiated by the Autumnal Equinox and Winter Solstice dates.

Plant growth based on soil temperatures initiates above 5°C. Below a soil temperature of about 5°C (41°F) growth of roots of most plants is negligible (U.S. Department of Agriculture, 1981).[2] During the Autumnal Equinox the vegetation of the Riverway Park is entering the dormant phase. The growing season is ending and plant growth is minimal. During the Winter Solstice, the vegetation within the Riverway Park is dormant, no growth is occurring at this time. Increases in shadows during these periods will have no effect on the park vegetation.

The vegetation in the park is comprised of hardy species. The dominant vegetative components are the red oaks and beech trees. Red oak trees are well suited for development in city conditions. City conditions include: poor soil, insufficient light, insufficient water, and excessive smoke and gas fumes in the air, all of which affect growth. Red oak trees are often planted in city settings. They are among the best suited trees for withstanding city conditions

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[1] U.S. Department of Agriculture 1975 Soil Taxonomy. Soil Conservation Service. U.S. Department of Agriculture Handbook.

[2] U.S. Department of Agriculture, 1981. Soil Survey Manual. Soil Conservation Service.

(Wyman 1990).[3] The American beech is similar to the northern red oak. The beech prefers full sunlight but can withstand shaded conditions (DIRR, 1983).[4] In both instances, the increase in shadows for a duration of less than 3 hours at a time when all plants are dormant, is expected to have no impact on the Riverway Park vegetation.

1.6 Mitigation

As shown in the DPIR/DEIR, during the morning hours of the autumnal equinox and the summer solstice, the Project will cause a slight increase to the shadows in the Riverway Park. Based on an analysis by an HMM botanist, and discussions with the Boston Landmarks Commission on February 3, 1994 regarding these new shadow impacts, no additional mitigation is proposed. The Hospital continues to maintain and increase open space throughout its campus and surrounding area. The Hospital has contributed to the redesign of Joslin Park (which it also maintains) and is creating a new open space, which has been the subject of numerous meetings with the BRA and the Parks and Recreation Department at the site of the existing MRI building, which will soon be demolished. The Hospital will continue to work with these agencies in developing final plans for this new open space.

1.7 Conclusions

The Riverway Park is the only area to show minimal increase of new shadows during the winter solstice and autumnal equinox from the Project. During the vernal equinox and summer solstice, the Project is not expected to create any new shadow on Riverway Park. The two sensitive pedestrian areas near the Project site, Pilgrim Road and Joslin Park, are not expected to be impacted at all by shadows from the Project, except at the corner of Pilgrim Road and Longwood Avenue as noted in Section 1.3. The cooling towers occupying a portion of the rooftop of the Pilgrim Road Garage are not expected to cast additional shadows on Autumn Street, Joslin Park or Riverway Park.

Additional shadows created by the Project are generally limited to portions of Autumn Street and Crossover Street. Under current conditions, however, these areas are already often in shadow from existing buildings.

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[3] Wyman, D., 1990. Trees for American Gardens. Third edition. New York: Macmillan Publishing Company.

[4] DIRR, M., 1983. Manual of Woody Landscape Plants: Their identification, ornamental characteristics, cultures, propagation and uses. Stipes, Illinois.

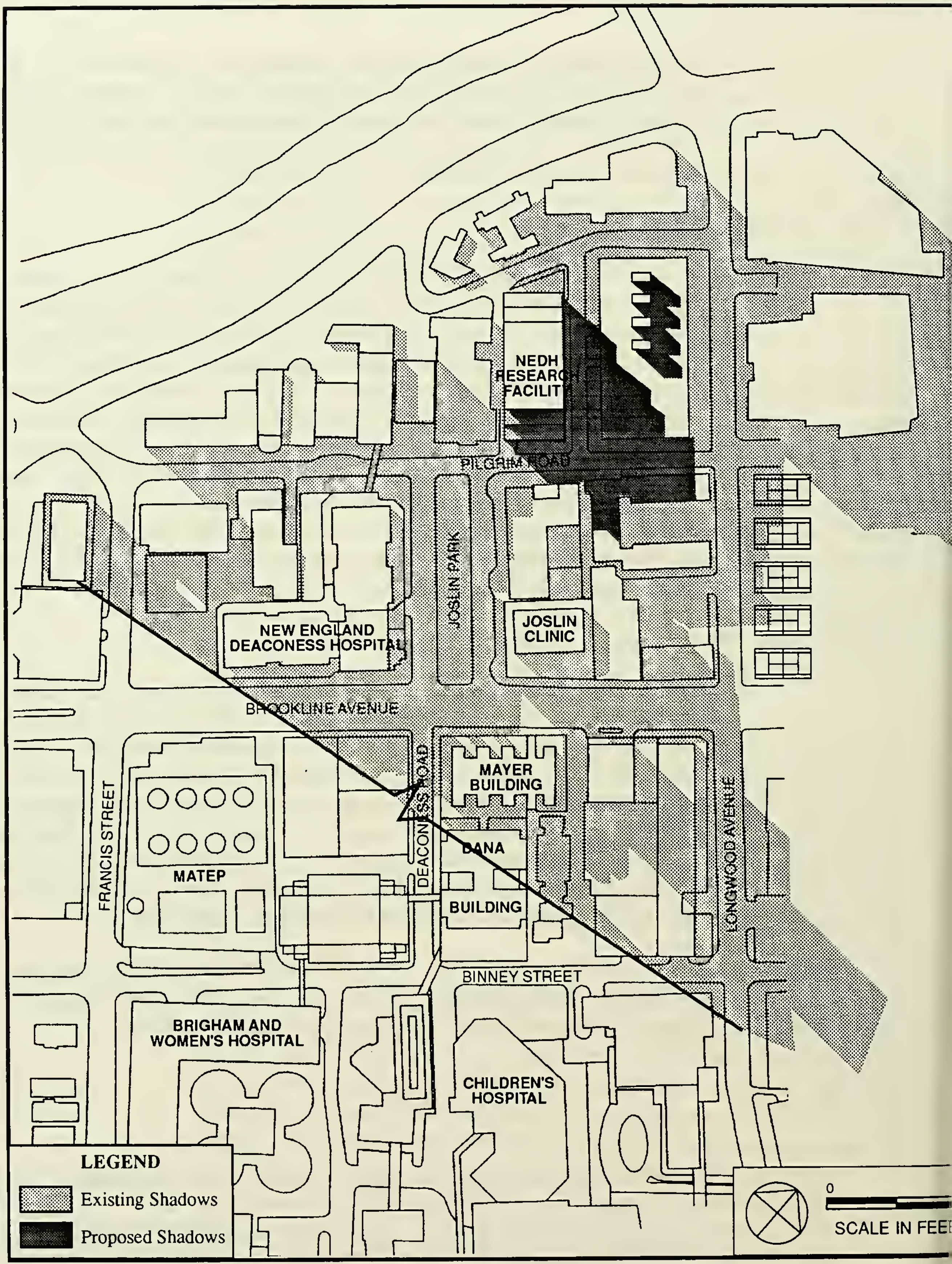

FIGURE V.1-4
JUNE 21, 6:00 PM SHADOWS
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

HMM Associates, Inc.
A Summit Company

2.0 DAYLIGHT STUDY

2.1 Introduction

The purpose of the additional daylight analysis is to estimate the extent to which the Project affects the amount of daylight reaching the pedestrian ways on Pilgrim Road in the immediate vicinity of the site. In accordance with the BRA's PAD, the FPIR/FEIR study presents three different configurations to determine improvements in daylight obstruction measurements from the Pilgrim Road viewpoint.

These configurations include:

1) Setting the Research Facility 16 feet back from the property line along Pilgrim Road (representing an additional 8 feet from the current proposal);

2) Reducing the building height from the current proposal of 175 feet to 147 feet (as previously presented in the DPIR/DEIR); and

3) Reducing the building height from 175 feet to 119 feet.

2.2 Methodology

This additional daylight analysis was performed utilizing the Boston Redevelopment Authority Daylighting Analysis (BRADA)* computer program. Using BRADA, a view of the building is taken at ground level from the centerline of the adjacent city streets or pedestrian ways. The facade of the building facing the viewpoint, including heights, setbacks, corners and other features, is plotted onto a base map using lateral and elevation angles. The two-dimensional base map produced by BRADA represents a figure of the building in the "sky dome" from the viewpoint chosen. The percentage obstruction of daylight from the viewpoint is calculated by BRADA based on the width of view, the location of the viewpoint, and the building design.

2.3 Results

Table V.2-1 presents the results of the additional daylight study. Graphic illustrations of the daylight obstruction from the Pilgrim Road viewpoint for each configuration are provided as Figures V.2-1 through V.2-5.

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* Harvey Bryan and Susan Stuebing, Boston Redevelopment Authority Daylighting Analysis (BRADA), MIT, Cambridge, MA.

Table V.2-1: Daylight Obstruction

Viewpoint	Configuration	Percent Obstruction
Pilgrim Road	Existing	28.6
	Proposed Project (175 feet in height)	75.4
	Alternative 1 (16 foot setback)	66.3
	Alternative 2 (147 feet in height)	72.4
	Alternative 3 (119 feet in height)	67.6

2.3.1 Pilgrim Road Alternatives

As shown in Table V.2-1, the existing daylight obstruction is 28.6%, from the viewpoint on Pilgrim Road and the Project results in 75.4% daylight obstruction. When the building is set back an additional 8 feet from the property line, resulting in a 16-foot setback (and a 24 foot setback from the street curb), the daylight obstruction value is 66.3%. Reducing the building by two stories (from 11 to 9) results in a 72.4% daylight obstruction value. Removing two additional stories (four stories and 56 feet in height below the Project) results in a 67.6% daylight obstruction value.

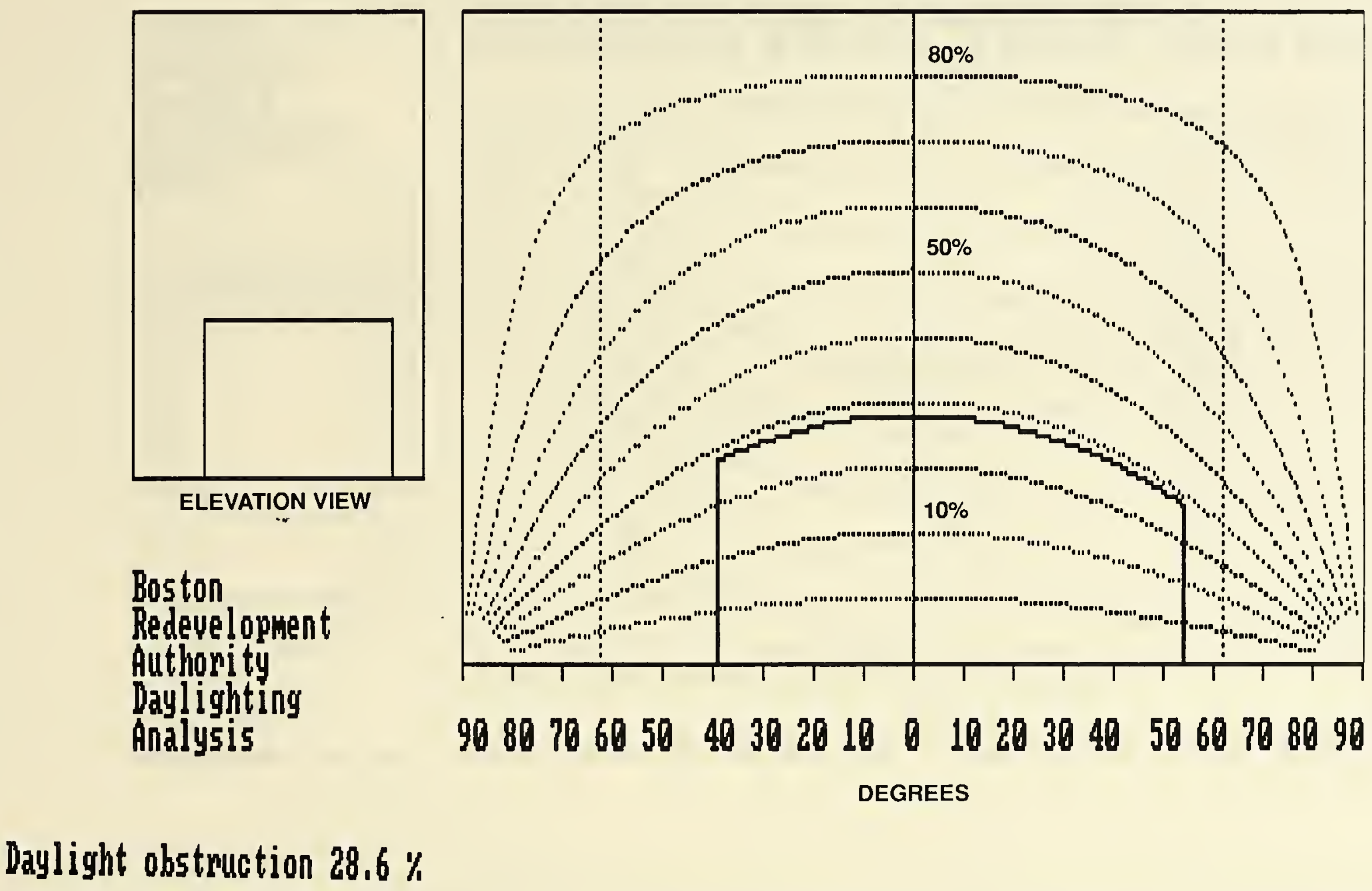
2.3.2 Future Deaconess Building Site Mitigation

To provide for future daylight obstruction mitigation along Pilgrim Road, the Hospital will give consideration to setbacks and/or use of materials that would maximize the transmission of daylight onto Pilgrim Road in connection with future design and construction of any new structure on the site of the existing Deaconess Building. A new building would be subject to BRA and Boston Landmarks Commission (BLC) review, as BLC lists this building in their files as a potential historic resource.

It is not known if the improvement to daylight obstruction would confirm or modify the BRA's analysis (referenced in the BRA's PAD) for a new building on the Deaconess site but the Hospital is committed to evaluate future possibilities using the guidelines established above.

2.4 Conclusions

The additional daylight analysis completed for this report reveals that the Project and the three alternative schemes will result in daylight obstruction values along Pilgrim Road that are, at the most, within nine percentage points. Neither setting the building further back from Pilgrim Road (and breaking up the existing street wall) nor reducing the building height will dramatically reduce the daylight obstruction values. The Project's daylight obstruction



Boston
Redevelopment
Authority
Daylighting
Analysis

Daylight obstruction 28.6 %

FIGURE V.2-1
PILGRIM ROAD VIEWPOINT
EXISTING CONDITIONS

8075 2/9/94

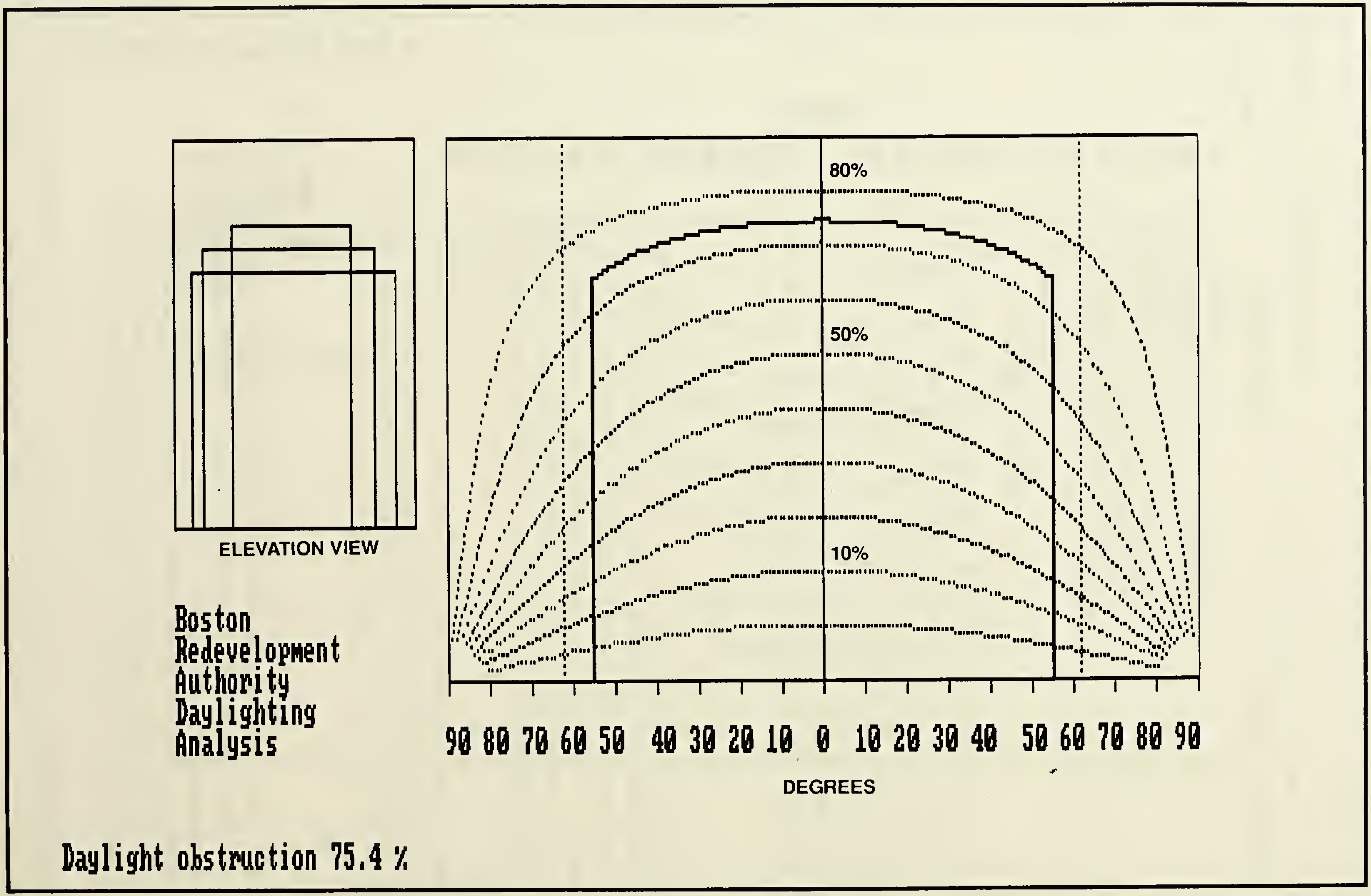
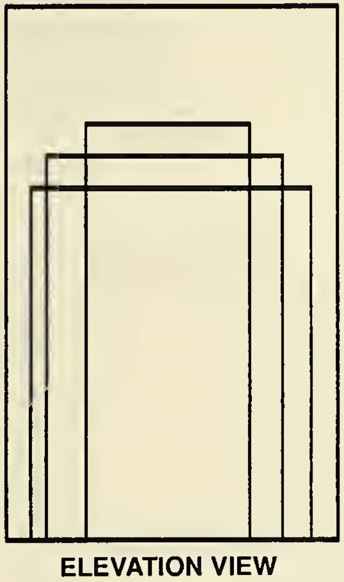
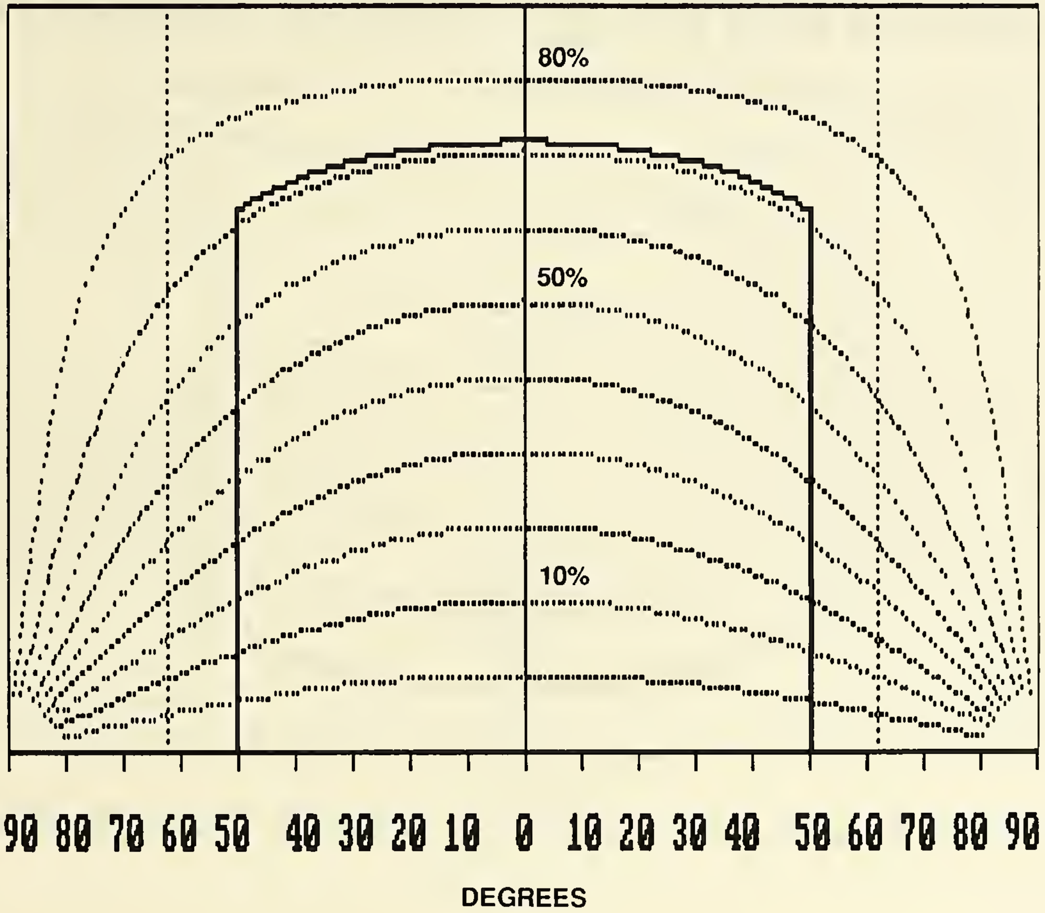


FIGURE V.2-2
PILGRIM ROAD VIEWPOINT
PROPOSED PROJECT

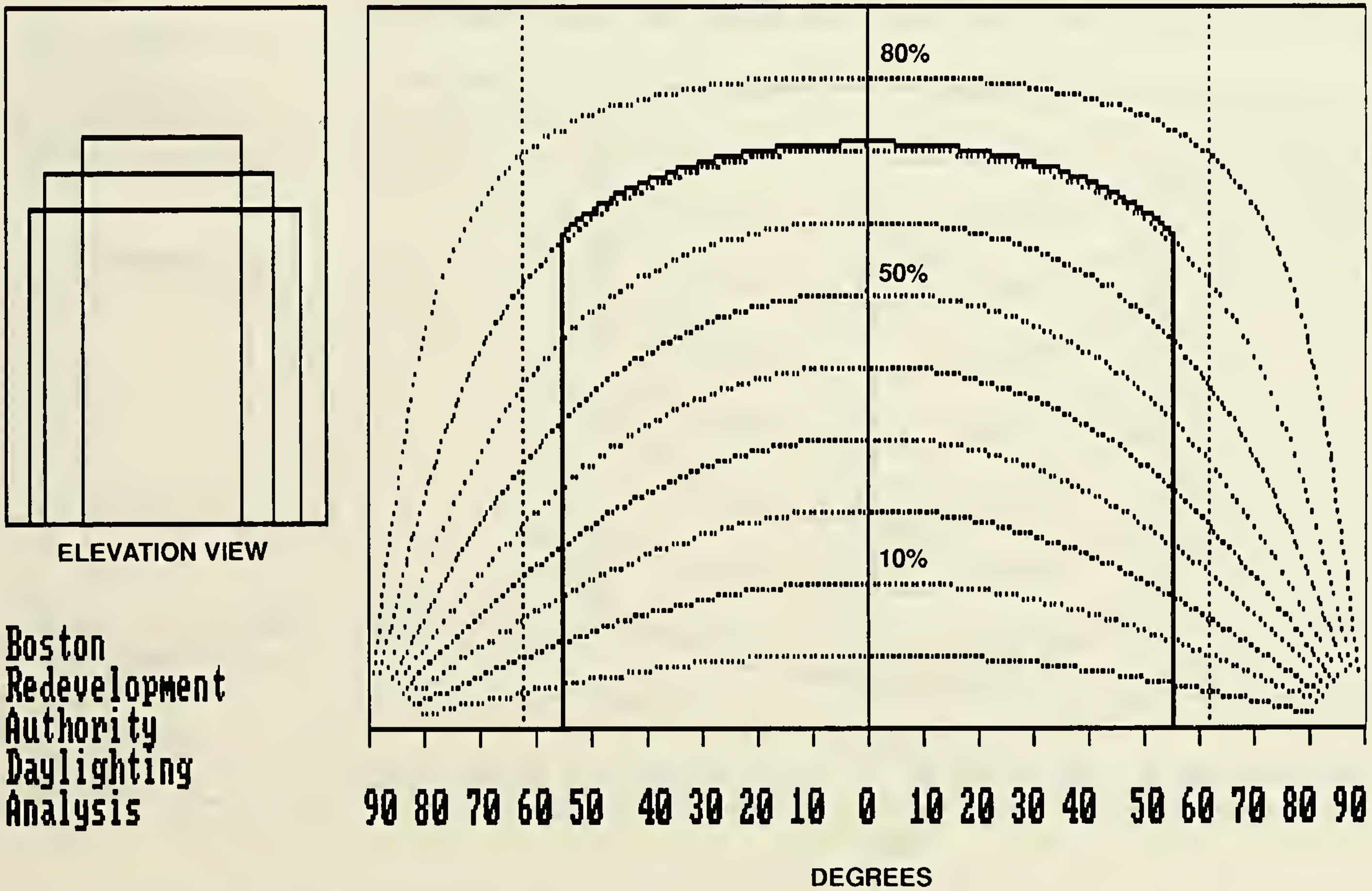




Boston
Redevelopment
Authority
Daylighting
Analysis

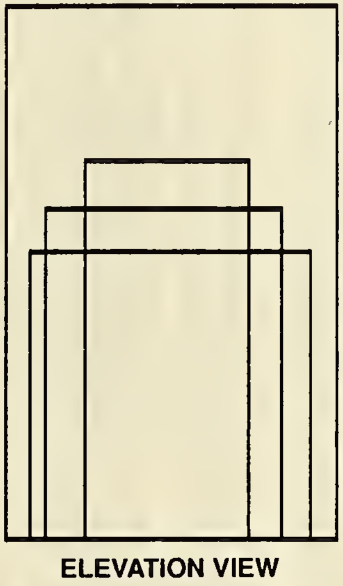
Daylight obstruction 66.3 %

FIGURE V.2-3
PILGRIM ROAD VIEWPOINT
ALTERNATIVE 1

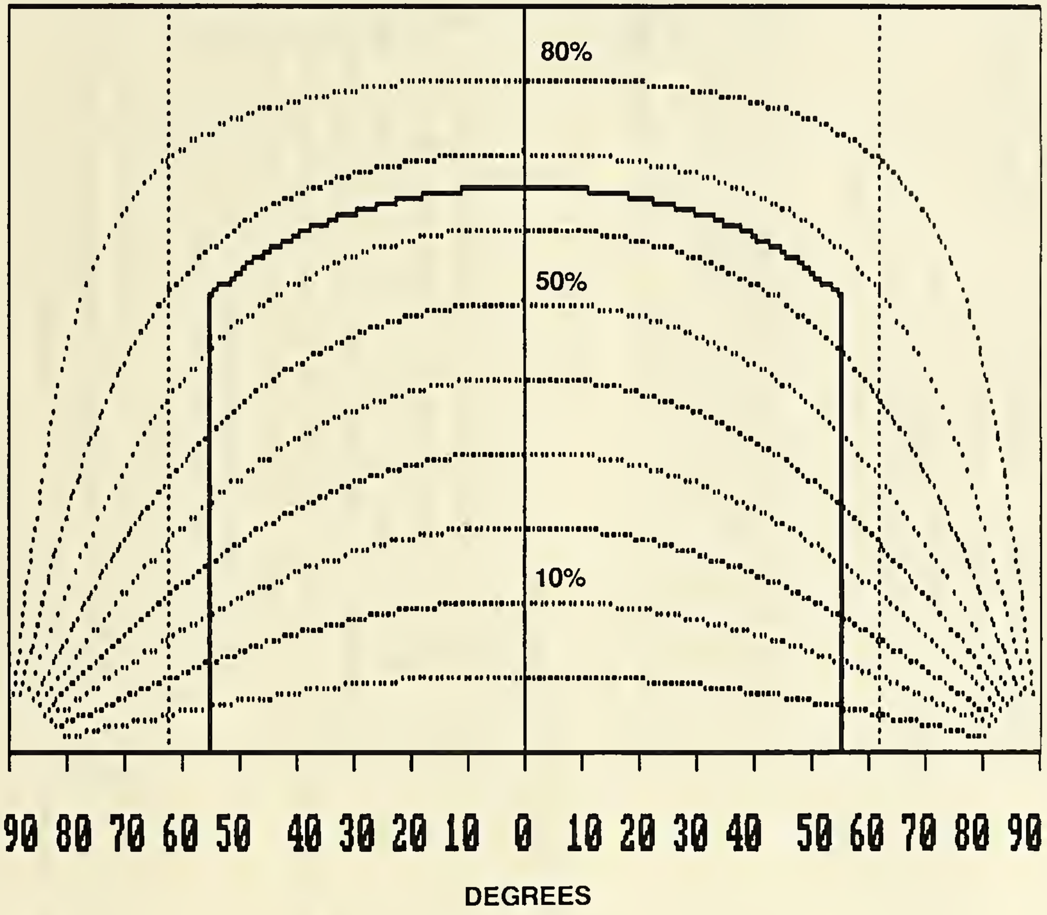


Daylight obstruction 72.4 %

FIGURE V.2-4
PILGRIM ROAD VIEWPOINT



**Boston
Redevelopment
Authority
Daylighting
Analysis**



Daylight obstruction 67.6 %

FIGURE V.2-5
PILGRIM ROAD VIEWPOINT
ALTERNATIVE 3

values are indeed typical of developed areas in general, and the Longwood Medical Area (LMA) in particular. Average daylight obstruction values for recent projects in the LMA have ranged from 68% for the Massachusetts College of Pharmacy's new academic and research facility adjacent to the Boston Latin School to 80.4% for the Children's Hospital Enders Building along Binney Street.

3.0 SOLID AND HAZARDOUS WASTE

3.1 Introduction

The BRA's PAD requires that a summary of the Site Assessment Report be included in the FPIR, as well as a discussion of efforts to recycle and reuse demolition and construction waste. In addition, the Secretary's Certificate requires that trace amounts of chemical and biological waste be identified and estimated.

3.2 Site Assessment Summary

In September and October of 1991, HMM Associates, Inc. (HMM) performed a Phase I limited environmental site assessment at 169-171 Pilgrim Road, the proposed site of the Research Facility. The environmental site assessment was undertaken to provide evidence regarding the presence and/or absence of releases of oil or hazardous materials on the subject property. The scope of work of the limited site assessment included the following:

- Inspection of the site's only permanent structure, the maintenance building, and grounds;
- Collection of background information and completion of soil borings and installation of monitoring wells;
- Collection of soil and groundwater samples for laboratory analysis and compilation of data generated; and
- Generation of an environmental site assessment report including conclusions and recommendations.

HMM concluded that, within the limits of the analytical program, there was no apparent evidence of groundwater contamination or soil contamination above regulated levels.

One area of concern was the possible existence of two underground fuel storage tanks identified on old site plans. It was learned that when the hospital began receiving steam from the Harvard Power Plant in the spring of 1953, the two oil tanks were no longer necessary. According to Hospital personnel, the tanks were removed in the summer of 1953, and there was no apparent contamination of soil. At the time of demolition and site preparation, further exploratory investigations will be undertaken.

In addition, since the completion of the Site Assessment Report, interviews with Hospital maintenance personnel have indicated that pipes, which appear to be abandoned fill-pipes associated with the former tanks, enter into the Deaconess Building basement and terminate without any connection.

A copy of the complete Environmental Site Assessment Report has been provided to the BRA and is available for review upon request. Copies of the relevant tables and figures from that report are provided in Appendix G.

3.3 Construction Waste

3.3.1 Demolition Debris

The demolition work for the Project is anticipated to last approximately four weeks. During the demolition period, eight to nine trucks of demolition debris will be removed daily from the site. Each truck holds approximately 30 cubic yards of debris, totaling approximately 240 to 360 cubic yards per day. Demolition waste will consist of concrete, masonry, wood, steel, roofing materials, interior partitioning, piping, wiring, and flooring materials.

3.3.2 Debris Composition and Disposal Sites

Prior to demolition or construction, the Hospital will hire a qualified professional to determine if there are hazardous materials such as asbestos in the existing permanent site building. If hazardous materials are identified, the Hospital will have them removed by a licensed contractor prior to any demolition. A licensed contractor will handle and dispose of any hazardous materials in an approved landfill in compliance with applicable local, state, and federal regulations.

The bulk of the construction debris will consist of non-contaminated steel, metal, wood, brick, and roofing material. The contractor will dispose of the waste in an approved landfill. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring. The naming of specific sites for disposal is premature at this time since conditions and available disposal sites may change prior to commencement of construction. The demolition contractor will, however, assume full responsibility for disposing the debris efficiently and appropriately in accordance with applicable regulations.

3.3.3 Reuse/Recycling

The Hospital will take an active role with regard to the reprocessing and recycling of demolition waste. The demolition and disposal contract will include specific requirements that will ensure that demolition procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials. For those matters that cannot be recycled, the contractor will transport solid waste in covered trucks to an approved solid waste facility, per DEP's Regulations for Solid Waste Facilities, 310 CMR 16.00. The demolition disposal contract will specify this requirement.

After discussions with DEP and with private demolition contractors, the Hospital will consider the following practices and reuse and recycling of demolition materials:

- Demolition will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.
- Brick, concrete and asphalt will be evaluated for its reprocessing opportunities to be used as fill or reused as a construction material.
- Wood containing glues, paints or other chemical preservatives cannot be recycled and will be separated for disposal at an approved facility. All "clean" wood may either be transported to a wood-chipping facility or reused as timber. If chipped, wood chips could then be sold to local landscaping companies. Otherwise, plankings may be sold to construction companies for construction or restoration projects.
- Much of the steel and iron may be recycled. Copper piping and copper wire may be recycled as well. Recycling would consist of melting down and refabricating new products. These materials may be sold to one or more of a number of scrap metal companies in the area.

3.4 Trace Amounts of Chemical or Biological Waste

The New England Deaconess Hospital campus currently holds an MWRA Industrial Sewer Usage Discharge Permit (No. 45 005 693) which regulates discharges of laboratory and process effluent to the sanitary sewer. This permit includes definitive limits on pollutants that are of concern to EPA and MWRA and as such, the existing New England Deaconess Hospital campus is required to comply with these limits.

proposed research facility. Dialogue with MWRA concerning modification of the permit to include discharges from the new facility has commenced. An MWRA inspector has already made a preliminary visit to the site in conjunction with the proposed facility.

As a permitted sewer user under the NEDH campus permit, the proposed facility will be subject to, and will comply with, stringent MWRA regulations on wastewater discharge quality. The provisions of the MWRA regulations are set forth in detail in the text of 360 CMR 10. General discharge prohibitions are covered in 360 CMR 10.021. Specific discharge prohibitions are detailed under 360 CMR 10.023. Specific limitations on pollutants (trace amounts) are tabulated in 360 CMR 10.024. These sections are presented in Appendix H and provide details of the extent to which trace pollutants from the proposed facility will be regulated. In addition, the MWRA establishes monitoring requirements for permittees which are based on the expected trace pollutants in the facility waste stream. These requirements are included in the existing permit, copies of which can be obtained and reviewed on request from MWRA. Certain metals such as copper, zinc, and silver could be present in the wastewater discharge as well as volatile organic compounds, but, if present, they would be at levels less than concentrations allowed by MWRA Discharge Limitations (360 CMR 10.021, 360 CMR 10.023 and 360 CMR 10.024).

New England Deaconess Hospital has a policy of full compliance with applicable wastewater discharge regulations. The proposed Research Facility will operate within this policy. Material storage and handling practices as well as wastewater treatment and disposal methods for the Research Facility will be designed to ensure compliance of the facility with these regulations.

4.0 NOISE ANALYSIS

4.1 Introduction

A quantitative noise impact analysis was conducted for the Project and presented in the DPIR/DEIR. Primary noise sources at the facility were identified and quantified at nearby sensitive locations. The results of the study indicate that the Project can meet the City of Boston noise criteria at all sensitive receptors using common noise mitigation measures.

The BRA's PAD requested clarification of the noise study methodology used in the DPIR/DEIR. The PAD stated that the specific locations and elevations of the measurement locations and modeling locations should be addressed in the FPIR.

4.2 Clarification of Noise Measurement Locations

A site survey was conducted in the DPIR/DEIR to identify locations that may be most affected by noise from the Project. This survey included obtaining access to the roof of the existing Maintenance Building and the roof of the Pilgrim Road Parking Garage. The sound generated by city street traffic and HVAC equipment at neighboring facilities was heard throughout the area. It was observed that the ambient noise levels at elevated locations was higher than at ground level locations. As is pointed out in the PAD, this is possibly due to the fact that ground level locations are farther from the rooftop equipment and that the buildings provide some shielding from distant noise sources. As a result of this observation, all measurement locations were selected at a point 5 feet from the ground level, which is approximately the height of the ears of a standing person of average height. Therefore, it is conservative to use the measured ground noise level to establish the ambient baseline, since areas with lower ambient levels will be more affected by new noise sources.

4.3 Noise Modeling Methodology

To maintain a conservative impact evaluation, it was also appropriate to evaluate receptor locations where the noise levels from the Project are highest. Noise level estimates were made at each receptor location based on the noise source-receptor pair that produced the highest noise level at that location. The Project has two primary noise sources, one being the cooling towers on the roof of the Pilgrim Road Garage and the other being the noise sources on the roof of the building.

Vertical Location of Modeled Receptors

Sample calculations were made to determine the elevation of the receiving windows where the Project noise levels would be highest. In each case, the highest noise level estimates were produced at the upper levels of the receiving buildings. For this reason, barrier calculations for rooftop noise sources were based on the upper floors of the receiving buildings. Noise from the cooling towers was calculated at the same receptor elevation as the top of the cooling towers. Since residential receptors are actually lower than the cooling towers, the actual cooling tower noise levels should be less than predicted in this study.

Horizontal Location of Modeled Receptors

The noise from Project sources was modeled at the part of the receptor building that is closest to the particular modeled noise source. Cooling tower noise levels were predicted at the windows nearest the cooling towers. Noise levels from rooftop sources were predicted at the windows nearest the rooftop sources. These predicted levels were added to produce a worst case estimate of noise at any window. For example:

The level of noise from the cooling towers was predicted at the upper floors of 306 Riverway in the northeast corner of the building. The level of noise from rooftop sources was estimated at the upper windows of 306 Riverway in the southeast corner of the building. The resulting levels were logarithmically added to obtain a worst case estimate of Project noise at the nearby building.

The actual noise level at any window of 306 Riverway should, therefore, be less than the level predicted for corresponding modeling receptor. This methodology was applied to each of the modeled receptors.

4.4 Summary

It is believed that the DPIR/DEIR estimate of Project noise at each modeled receptor was conservative, or worst case. Results of the DPIR/DEIR study indicate that the Project will comply with the City of Boston Noise Ordinance criteria at all modeled locations. Therefore, actual Project noise levels at each of the community sensitive receptors are expected to be lower than predicted by the noise modeling.

VI. URBAN DESIGN COMPONENT

VI. URBAN DESIGN COMPONENT

1.0 ALTERNATIVE LOCATIONS CONSIDERED FOR THE PROJECT

The Project site is located on the New England Deaconess Hospital campus, on the block bounded by Pilgrim Road, Autumn Street, the Hospital's Deaconess Building, and the Pilgrim Road Garage.

The Hospital chose this site for the Project because it is the only property of sufficient size owned by the Hospital in the LMA that is essentially available. This site is also adjacent or nearby to other hospital research and clinical facilities whose proximity is significant to the operation of the new space.

As the Cancer Research Institute (CRI) may be demolished after relocation of research activity to the new facility, the CRI site was considered for the Project. The Hospital determined, however, that insufficient space was available on that site to meet proposed program requirements.

No alternative locations outside of the LMA were identified. The Hospital does not own developable property outside of the LMA. Also, siting the Project outside the LMA would not lead to consolidation of research space, currently distributed within and nearby to the LMA. Locating the Project on the Hospital Campus will also promote effective interaction between researchers and clinicians which is a major objective of providing the new space.

2.0 DESIGN SUMMARY: BUILDING DESCRIPTION

The Hospital proposes to build a 295,000 gross square foot biomedical research facility (236,740 gsf for floor area ratio purposes). The Project site will abut the Deaconess Building to the south, Autumn Street to the west, Pilgrim Road Garage to the north, and Pilgrim Road to the east. There will be two floors below-grade and 11 floors above, including a mechanical penthouse. At the second level (Boston Base Elevation 67'-0"), there will be a connection to the Deaconess Building, which in turn ties into the main concourse at approximately elevation +67 feet. This connection services most of the Hospital buildings including the new Clinical Building. Also, at the second level of the research facility, there will be a bridge to the Pilgrim Road Garage and a bridge from the Pilgrim Road Garage to the Kennedy Building.

The two basement floors will contain storage, mechanical, and animal space that service the building. Mechanical spaces and some storage spaces will be located below Crossover Street, a private way which is located on the Project site. On the first floor, two entries are planned, one on Pilgrim Road and another on Crossover Street. An enclosed truck dock with its associated spaces will be accessible from Autumn Street. The remaining space on the first floor will be accessible from Autumn Street. The remaining space on the first floor is assigned to lobbies, a 250-seat lecture hall, some office spaces, and building services. At the second level, which connects this building to other Hospital buildings, is a public concourse, conference spaces, and building mechanical space.

Floors 3 through 10 are generic laboratory floors with a high degree of flexibility to accommodate the changing research environment. At the 11th floor is the remainder of building mechanical space.

The Hospital is proposing that the Project use brick, granite, and glass on the exterior, similar to the buildings along the west side of Pilgrim Road. Since Crossover Street will be removed and replaced in the same location and dimension, the Hospital will be constructing new sidewalks, plantings, benches, and lighting along the front of the Pilgrim Road Garage. Similar treatment will be given to the sidewalks along Pilgrim Road and Autumn Street. In addition, following the completion of the Project, the temporary MRI building on Autumn Street will be removed and replaced with a new open space. The Hospital will build, own and maintain the new open space, and its creation will increase open space on the Hospital's Campus.

The cooling towers proposed to serve the Project will be located on a portion of the rooftop of the Pilgrim Road Garage. The towers will increase part of the height of the garage containing the new mechanicals from 67 feet to approximately 92 feet. The Project will also include minor infill additions to the abutting Deaconess Building which are necessary to coherently relate and connect that building to the new Research Facility.

Alternative Schemes

The MEPA scope for the DPIR/DEIR requested the presentation of an alternative massing for the Project. A shorter building (147 feet, with 9 floors) was reviewed requiring the elimination of two of the Project's intermediate floors with no changes to the rooftop mechanicals or massing configuration from the proposed Project. The DPIR/DEIR presented and evaluated the effects of this scheme, which showed that the environmental effects of the full build would not differ significantly from the reduced build.

In addition, the Hospital initially presented a higher alternative scheme in the revised PNF and in the Notice of Project Change which was 190 feet, and contained 12 stories.. The BRA and the Boston Civic Design Commission (BCDC) reviewed this scheme. The proposed Project (175 feet, 11 stories), which is fully evaluated in the DPIR/DEIR and in this report, reflects changes requested by the BRA and BCDC.

The FPIR/FEIR contains two additional schemes used to evaluate daylight impacts on Pilgrim Road. One scheme reduced the height to 119 feet and a second scheme increased setback from Pilgrim Road from 8 feet to 16 feet.

3.0 CIRCULATION

3.1 Pedestrian Bridges

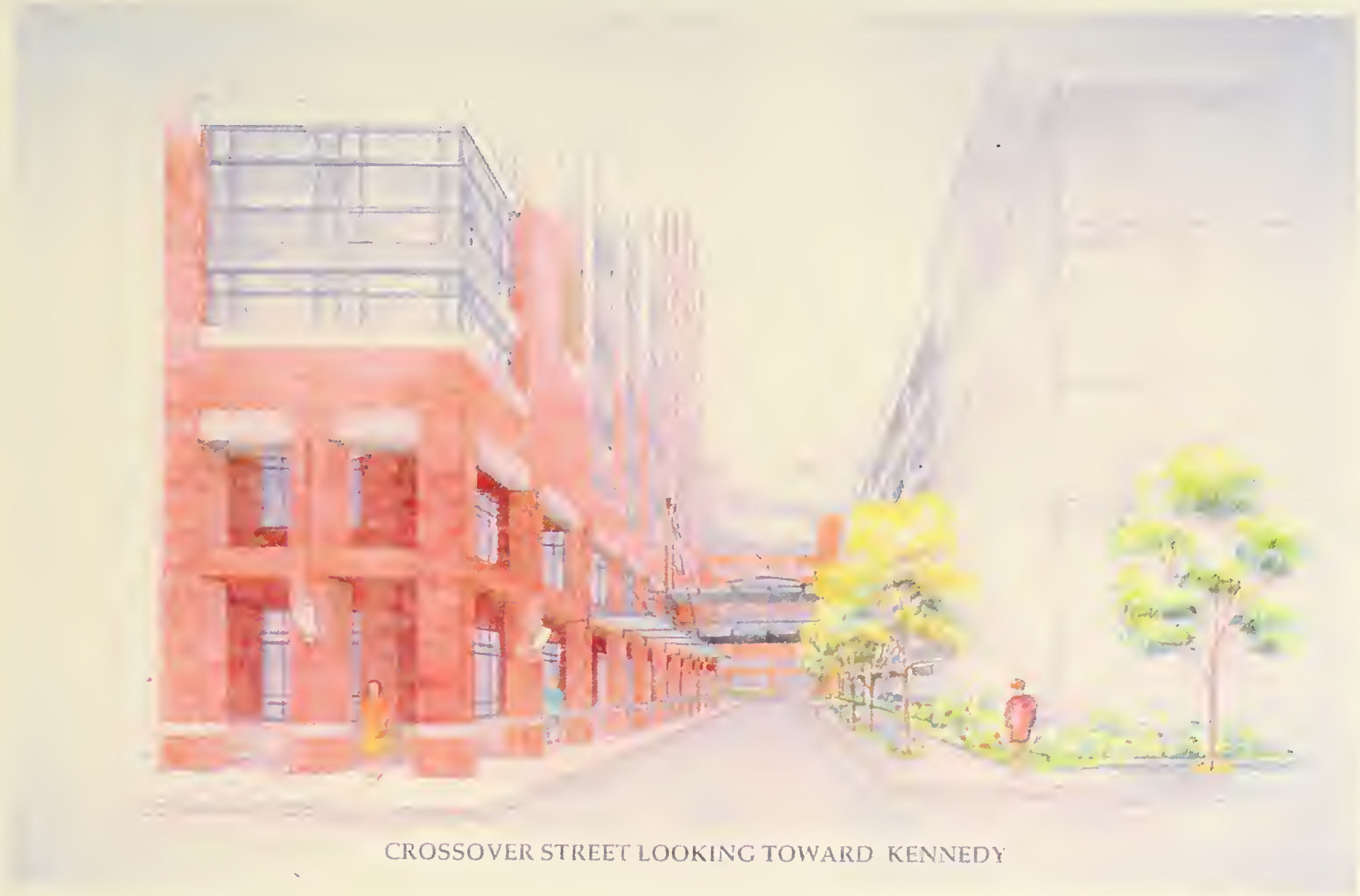
Two new covered pedestrian bridges are proposed as part of the Project. One bridge connects to the Kennedy Building and a second to the Pilgrim Road Garage. The Deaconess Building will also be connected to the Project, thereby completing an interior pedestrian connection between the Kennedy Building at one end of the Hospital Campus and the new Clinical and other Hospital facilities closer to Francis Street.

3.2 Pedestrian Circulation Improvements

Pilgrim Road has been developed with a mixture of high and low buildings along its edges that present an assortment of architectural styles.

In spite of its diversity, the streetscape is characterized as a pleasant pedestrian way due largely to its relatively narrow width, accompanied by planting beds on either side, and frequent use of brick in the buildings on either side. Smaller scale entries mark the entrances to several of the buildings, and create a pedestrian presence. The locations of the two entries to the proposed Research Facility, one on Pilgrim Road and one on Crossover Street will augment pedestrian presence, especially at night. The building will be setback to provide small planting beds along Pilgrim Road. The trees along Crossover Street will also be augmented to provide a more pleasant pedestrian environment (see Figure VI.3-1).

The internal streets on the Hospital campus provide effective pedestrian routes to all of the New England Deaconess Hospital buildings. With the opening of the new Clinical Building in 1994, the Hospital will relocate its main entrance from Pilgrim Road to an area adjacent to Joslin Park. This will enhance the entrance to the Hospital, will make Joslin Park accessible to patients, visitors and staff as they enter and exit the Hospital, and will allow for easier pedestrian connections to commercial services along Brookline Avenue (including those within the Clinical Building fronting on Brookline Avenue) and to MBTA bus stops along Brookline Avenue (see Figure VI.3-2 for open space and pedestrian improvements plan).


CROSSOVER STREET LOOKING TOWARD KENNEDY

SBRA ARCHITECTS

FIGURE VI.3-1
CROSSOVER STREET LOOKING TOWARD KENNEDY BUILDING
NEW ENGLAND DEACONESS HOSPITAL RESEARCH FACILITY

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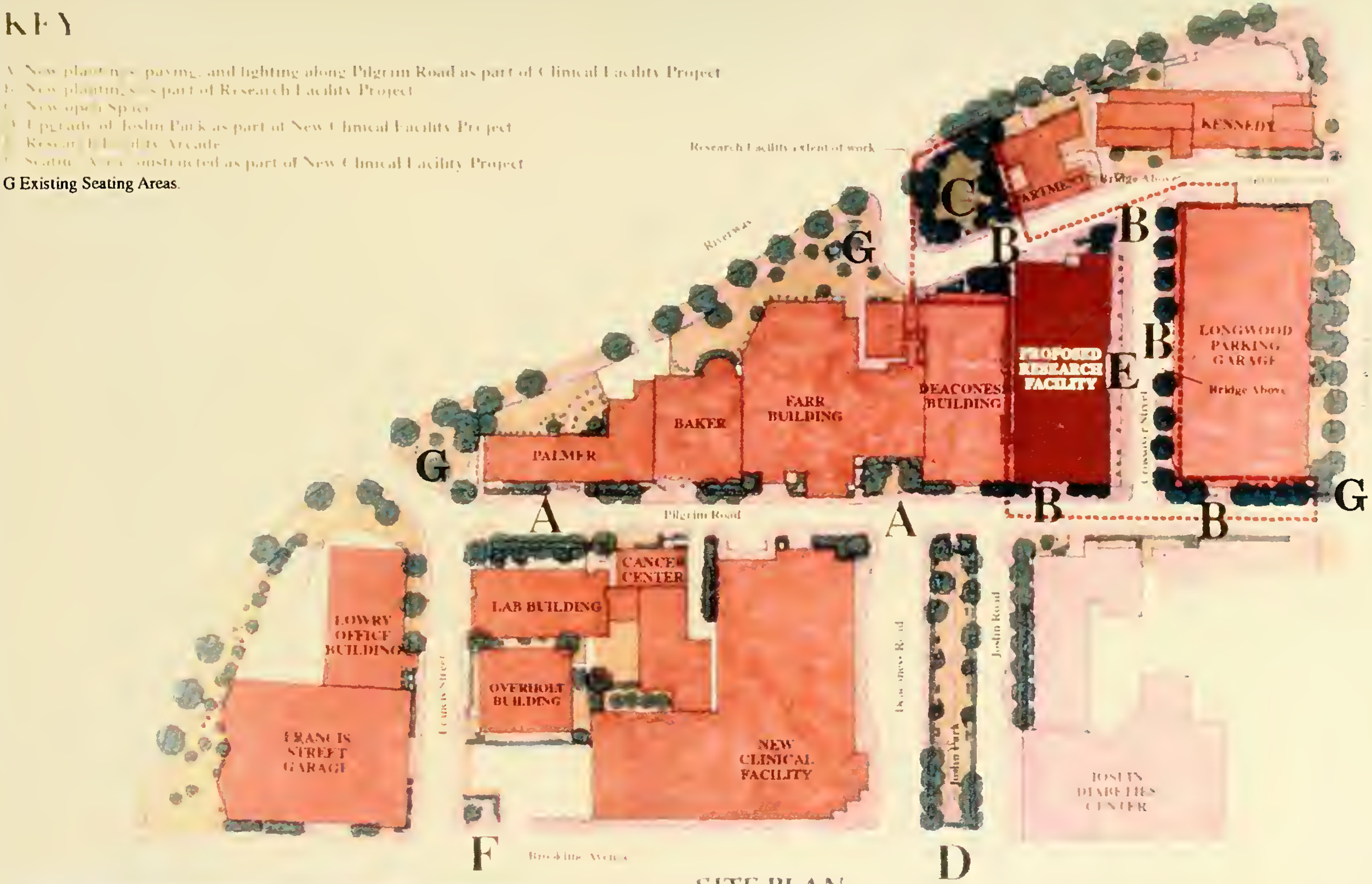

KEY
A New plantings, paving, and lighting along Pilgrim Road as part of Clinical Facility Project
B New plantings as part of Research Facility Project
C New open Space
D Upgrade of Joslin Park as part of New Clinical Facility Project
E Research Facility Arcade
F Seating Area constructed as part of New Clinical Facility Project
G Existing Seating Areas.
Research Facility extent of work
Riverway
KENNEDY
APARTMENTS
Bridge Above
LONGWOOD PARKING GARAGE
Bridge Above
PROPOSED RESEARCH FACILITY
DEACONESS BUILDING
FARR BUILDING
BAKER
PALMER
Longwood Street
Pilgrim Road
CANCER CENTER
LAB BUILDING
OVERHOLT BUILDING
LOWRY OFFICE BUILDING
FRANCIS STREET GARAGE
Francis Street
NEW CLINICAL FACILITY
Deaconess Road
Joslin Park
Joslin Road
JOSLIN DIABETES CENTER
Brookline Avenue
A
A
B
B
B
B
B
B
C
D
E
F
G
G
G
G

SITE PLAN

1" = 40'-0"

Shepley Bulfinch Richardson and Abbott - Architects
Walker-Kluesing Design Group - Landscape Architects

SBRA ARCHITECTS

FIGURE VI.3-2
OPEN SPACE AND PEDESTRIAN IMPROVEMENTS PLAN

HMM Associates, Inc.
A Summit Company

New signage and pedestrian maps will be installed to direct pedestrians to the Hospital's new entrance and to provide clear information regarding location of hospital facilities and pedestrian routes. The portion of Pilgrim Road between Deaconess Road and Francis Street will be narrowed and maintained as a private way, available only for limited vehicular traffic. This will thereby improve pedestrian movement through the campus. Sidewalks along this stretch of Pilgrim Road will also be widened and enhanced with benches, plantings and improved lighting.

The Project's primary pedestrian entrance will be from Pilgrim Road with a secondary access from Crossover Street. Both of these locations are linked to the Pilgrim Road sidewalks that are the Hospital's main pedestrian "spine" through the Campus. With the entrance on Pilgrim Road, diagonally across Joslin Park from the New Clinical Building entrance, pedestrian movement between these two important campus facilities will be improved.

The Project will also enhance the pedestrian character of Pilgrim Road. The pedestrian environment is characterized by the relatively narrow width, accompanied by planting beds between the buildings and sidewalks, and the frequent use of brick in the buildings. The Project will continue and enhance the pedestrian quality of the area with planting beds along Pilgrim Road and a compatible building material.

3.3 Bicycle Circulation

The Hospital encourages bicycle circulation throughout the campus and along roadways in accordance with Massachusetts Driving Regulations (see Figure IV.1-6 for campus site circulation plan). The Hospital will continue to provide ample, secure, protected, convenient and free bicycle parking. All employees and staff who commute to work by bicycle will be provided access to locker and shower facilities.

3.4 Service Access

The two loading docks and dumpster bay for the service area will be enclosed at street level off Autumn Street to the rear of the Project. While the loading area will be able to accommodate one tractor trailer, it is expected that most deliveries will be by smaller vans.

4.0 URBAN DESIGN CHARACTERISTICS

It is the Hospital's intent that the Project will enhance the relationships between the existing buildings on the Hospital's campus. The height, footprint and massing of the proposed building will be compatible with the surrounding

Hospital structures. Its materials will be compatible with those of nearby existing structures. The proposed building will enclose its service functions and will augment the small planting beds along Pilgrim Road and the trees along Crossover Street.

4.1 Architectural Compatibility

The immediate neighborhood can be characterized as a collection of diverse buildings, generally ranging in height from 3 to 8 stories, and constructed primarily of masonry, stone and concrete material. The proposed building will be similar in massing, being 11 stories tall, and compatible in materials, being a combination of brick, granite and glass.

4.2 Relationship to Subdistrict Urban Design Features

The primary urban design concept revolves around Joslin Park as the focal open space for three major medical institutions: Dana-Farber Cancer Institute, Joslin Diabetes Center and New England Deaconess Hospital.

Both Joslin and the New England Deaconess Hospital (as part of its new Clinical Facility project) are currently rebuilding the primary entrances to their facilities in locations across from the open space. The Research Facility will also locate its main entry on Pilgrim Road with a secondary entry along Crossover Street, opposite the garage entrance.

The height of the Research Facility will relate to the three latest building projects (under construction or in planning) surrounding the park, namely Joslin Diabetes Center expansion, Dana-Farber Research Facility, and the Hospital's Clinical Facility. The increased height and massing around the park helps define the open space and augments its artistic definition.

A second urban design concept is to enhance the character and view of the Research Facility from the Riverway toward the Autumn Street end of the Facility. The arrangement of the laboratory offices will break up the Project into smaller more human scale subparts to create a picturesque view from Riverway. In addition, the park proposed on the location of the existing MRI building will provide an increase in open space along Autumn Street.

The third urban design concept is to augment the pedestrian and signage character of Pilgrim Road. Sensitivity to planting materials, lighting, and signs is already part of the Hospital's Institutional Master Plan for its most recent buildings on campus, and will be supported by this Project as well.

4.3 Relationship to Institutional Master Plan

The Hospital has received approval of its Institutional Master Plan dated October 1993 (rev.) from the BRA and the Zoning Commission. As part of an overall approach to replacement and expansion of facilities on the Deaconess campus, the Hospital has determined a few significant guidelines for their current and future projects. These guidelines are the following:

- All master plan projects should support the concept of a "concourse" or indoor public pathway connecting all of their facilities. The new Clinical Facility provides a bridge concourse to connect to the Farr Building on Level 3. The proposed Research Facility will continue the Concourse, connecting to the Kennedy Building, the Pilgrim Road Garage, and its own activities to the rest of the Hospital campus. (Please note that because of grade changes, the Concourse is called Level 2 in the Research Facility.)
- "Like activities" will be clustered together:
    1) The Hospital will locate its clinical functions primarily in the new Clinical Facility on Brookline Avenue, and in the nearby Farr and Deaconess Buildings.
    2) Research functions, now scattered on and off campus, will be located in one building, in one location, namely this proposed facility and site.

5.0 OPEN SPACE NETWORK

One of the Hospital's objectives with both its new Clinical Facility and Research Facility projects is to enhance Joslin Park as open space and park land for use by Hospital patients, visitors and staff as well as other employees and residents in the LMA.

Wherever feasible the Hospital has tried to upgrade its sidewalks with landscaping benches, as appropriate, at nodal locations such as Pilgrim Road and Francis Street (adjacent to the Palmer Building), and at the corner of Brookline Avenue and Francis Street (in conjunction with the new Clinical Facility). As discussed in Section 3.2 of this chapter, Pilgrim Road between Deaconess Road and Francis Street will have widened sidewalks and new landscaping following completion of the Clinical Facility.

5.1 New Open Space at Site of Temporary MRI Building

Following relocation of the MRI Unit to the New Clinical Facility, the Hospital will demolish the temporary structure and install a new open space on the MRI site at the corner of Autumn Street and the Riverway (see Figure VI.5-1). The plan for the development of the open space of the MRI site will expand the visual influence of the adjacent historic Olmsted designed Riverway. The plan will also encourage both Hospital and public use of this 1/6 acre site.

The plans and plant material palette for the site are compatible with the Olmsted design of the Riverway. Working around two existing Oaks and a Locust, new plants frame a central lawn with eight new benches overlooking the view of the Riverway. New evergreen trees along Autumn Street will screen service access to the Research Facility. New low growing evergreen and deciduous shrubs provide a sense of closure at the perimeter of the site.

Pedestrian access to the site is provided at the intersection of the Riverway and Autumn Street with a new stair to be built into the existing stone retaining wall. Additional pedestrian access is provided at Autumn Street through masonry gate posts.

The Hospital intends to use the open space for both active and passive recreational use by the Hospital and the public.

The Hospital will design and install this permanent open space prior to occupancy of the Research Facility in 1997. The Hospital, by virtue of its ownership of the open space, will maintain and operate the uses within the open space. The plans have been developed with input from the BRA urban design staff and review by the Boston Parks and Recreation staff. This close cooperation will continue through Project implementation.

6.0 PLANS, SECTIONS AND ELEVATIONS

The revised BRA Schematic Design Submission is contained in Appendix C.

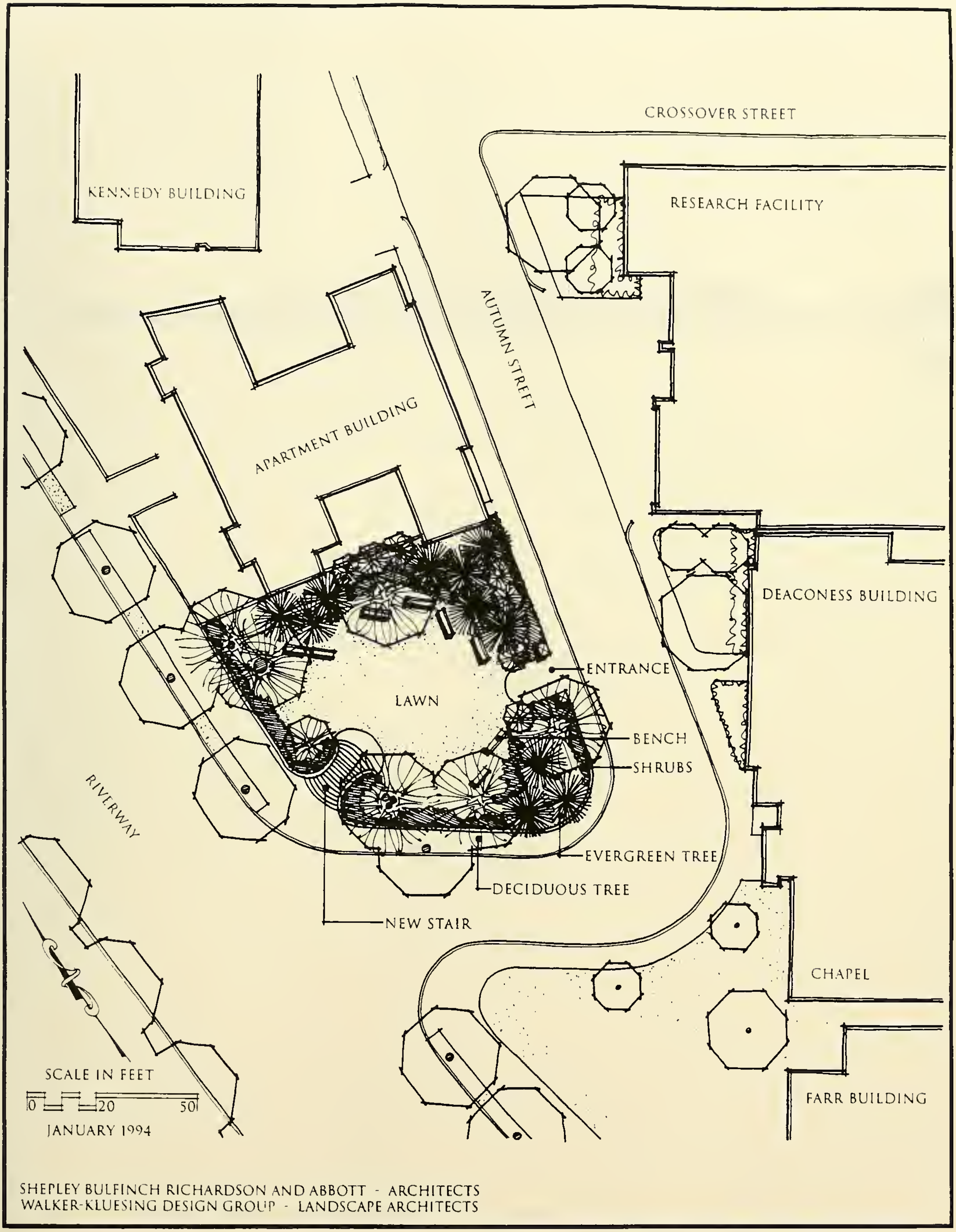

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FIGURE VI.5-1
MRI OPEN SPACE PLAN
NEW ENGLAND DEACONESS HOSPITAL

VII. HISTORIC RESOURCES COMPONENT

VII. HISTORIC RESOURCES COMPONENT

1.0 INTRODUCTION

As described in the DPIR/DEIR, the Historic Resources Component includes an assessment of impacts of the proposed project's height, scale, massing, and other relevant environmental factors on any historic districts or buildings in the vicinity or on the site of the proposed Project. During discussions with the Boston Landmarks Commission two hospital buildings were identified for impact analysis:

- Palmer Memorial Building, 195 Pilgrim Road.
- Deaconess Building, 175 Pilgrim Road.

In addition, Olmsted Park, which includes the Riverway and the Muddy River, is listed on the National Register of Historic Places. See Appendix E for the National Register Inventory form.

Through the appropriate use of materials, height, and massing, the Project has been designed to ensure its compatibility with, and minimize its impacts on, these nearby cultural resources.

The Historic Resources Component is based on conversations with the Boston Landmarks Commission, and information collected at the Massachusetts Historical Commission (MHC). Figure VII.2-1 shows the two buildings and one district identified for analysis.

2.0 HISTORIC RESOURCES IN THE PROJECT AREA

Based on a review of Massachusetts Historical Commission files and discussions with the Boston Landmarks Commission, there is one known historic resource listed on the National Register of Historic Places located within a one-eighth mile radius of the site.

Olmsted Park

Olmsted Park is part of Boston's famous "Emerald Necklace," a series of greenways and parks designed by Frederick Law Olmsted between 1879 and 1892. The park system links the Boston Common and Public Garden in downtown Boston with the Back Bay Fens, Jamaica Park and eventually Franklin Park in Roxbury. Two sections of Olmsted Park run near the western edge of the proposed Project site: the Riverway (also known as Riverway Park) and the Muddy River. The Riverway is the name of a linear park connecting the Fens and Jamaica Pond, through which the Muddy River

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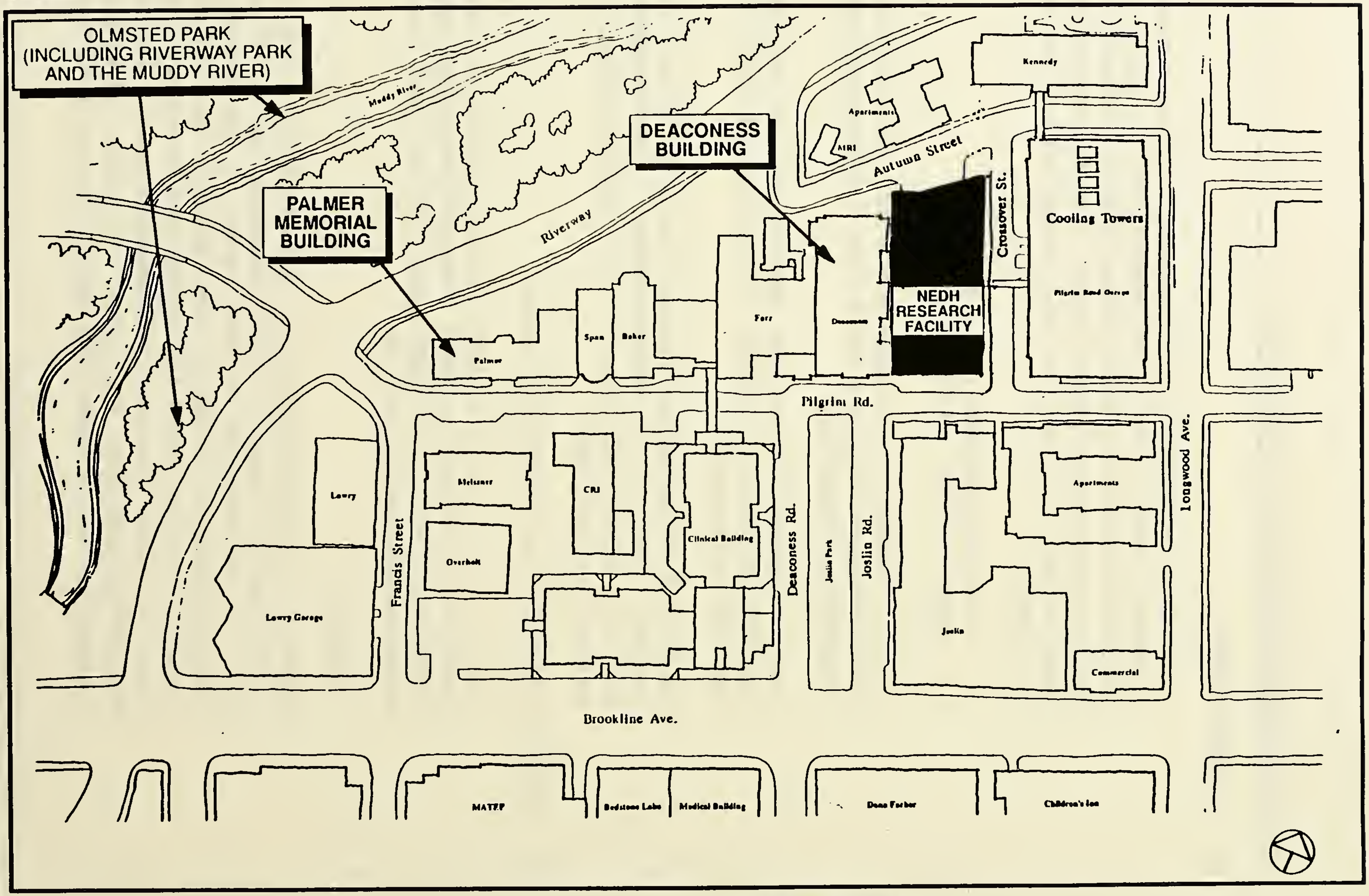

FIGURE VII.2-1

CULTURAL RESOURCES IN THE PROPOSED PROJECT VICINITY

NEW ENGLAND DEACONESS HOSPITAL

flows. Although many of the structures in the Park are in need of repair, Olmsted Park today remains intact and close to its original design. Olmsted Park has been listed on the National Register since 1971.

In addition, as discussed above, the following two hospital buildings were identified for analysis.

Palmer Memorial Building

The Palmer Memorial Building, 195 Pilgrim Road, is part of the New England Deaconess Hospital. The Palmer Memorial Building, which opened in April, 1927, was built and operated by the Hospital to house patients from the Cullis Consumptive Home in Roxbury. The building is an imposing Georgian Revival building with the lower two floors forming a base for the upper stories.

Deaconess Building

The Deaconess Building, located at 175 Pilgrim Road, was constructed between 1903-1907 as the original New England Deaconess Hospital Building. This building is an example of the Georgian Revival style, rectangular in plan and having a front facade of three bays.

3.0 RELATIONSHIP OF PROPOSED PROJECT TO HISTORIC RESOURCES

3.1 Architectural Relationship

The Project is consistent with the height, scale, and massing with the surrounding hospital structures. The intent of the Project is to enhance the relationship between existing buildings on the Hospital campus. The Project's building materials will be sensitive to the Palmer Memorial Building, Deaconess Building, and to nearby existing structures.

The immediate Hospital neighborhood can be characterized as a collection of diverse buildings, ranging in height from three to eight stories, and constructed primarily of masonry, stone, and concrete material. The proposed building will be similar in massing, being eleven stories tall, and similar in materials, being a combination of masonry, stone, and glass.

The architectural concept for the Project will enhance the Joslin Park urban design concept. In particular, the height of the proposed building is consistent with the three latest building projects surrounding the park (Joslin Research addition and New England Deaconess Hospital Clinical Facility (which are under construction), and the proposed Dana-Farber Research Facility), creating a uniform massing which augments the definition of Joslin Park.

In addition, the new open space proposed for the site of the current MRI Building will serve as a physical entrance to the Hospital campus from the Riverway, and visually connect the Project with the Riverway and the rest of Olmsted Park.

3.2 Environmental Impacts on Historic Resources

It is expected that there will be no significant negative environmental impacts on the cultural and historic resources in the vicinity of the Project site. The Project will create a slight increase in the already substantial existing shadows on the Riverway during the autumn and winter seasons, however. The increase in shadows for a duration of less than three hours during seasons when plants are dormant is expected to have no impacts on the Riverway Park vegetation.

Similarly, the Project will not impact either the Palmer Memorial or Deaconess Buildings. The Project's height of 175 feet is similar to the height of the Farr Building, which is located between both of these buildings.

The Hospital recognizes Riverway Park as a significant historic resource and is planning a new open space at the Riverway and Autumn Street to help extend Riverway Park into the Hospital's campus.

VIII. INFRASTRUCTURE SYSTEMS COMPONENT

VIII. INFRASTRUCTURE SYSTEMS COMPONENT

1.0 INTRODUCTION

The Infrastructure Systems Component presented in the DPIR/DEIR was found to be sufficient to satisfy the scoping requirements, with the exception of four issues raised by the BRA's PAD discussed below.

1.1 Background Numbers for Infrastructure

Background numbers for the DPIR/DEIR's infrastructure discussion was requested. The cooling requirements for the Project will be approximately 3,000 tons. The chiller is expected to be operated only during the moderate and warmer months of the year (roughly April through September). The plant's peak water consumption during operation is approximately 130,000 gpd (90 gpm) based on evaporative heat content of water (12,000 btu/hour/ton of refrigeration) and blowdown resulting from 5 cycles of concentration (typically 20% of total make-up requirements). Average water consumption is expected to be approximately 58,000 gpd (40 gpm).

Peak water consumption for the Project is expected to be approximately 190 gpm based on peak research use of 100 gpm and peak cooling tower requirement of 90 gpm. Peak requirement of the Project would account for 20% of minimum estimated pipe capacity of the water main adjacent to the facility. The system-wide ability to deliver water to the Project location is limited by capacity of the larger feeder mains in the LMA of roughly 2,300 gpm at a residual pressure of approximately 40 psi based on recent hydrant test data.

Peak wastewater discharge to the sanitary sewer is expected to be approximately 128 gpm (0.18 mgd). The short segments, 95-CZ96 and CZ96-CZ97, operate under pressure. The manhole covers in the segments are water-tight concrete plugs. As a result, the limiting segment in terms of capacity appears to be CZ97-167 (prior to connection to the Brookline Interceptor Sewer) or 8.55 mgd. Boston Water and Sewer Commission (BWSC) has indicated that no overflow problems currently are observed in the sewer line evaluated.

1.2 Evaluation of Adequacy of Sewer Systems

The adequacy of the sewer system to handle projected generation was investigated. Based on recent discussions with the BWSC, no overflow problems have been noted in the sewer line evaluated for the Project, and there is sufficient available capacity in the system.

Sewer segments 95-CZ96 and CZ96-CZ97 (segments under the Muddy River connecting to Brookline Sewer) were reviewed with BWSC, and there were no known problems of surcharge or overflow present.

1.3 Makeup Water for Proposed Cooling Towers

The make-up water for the proposed cooling towers has been calculated. Peak make-up water for cooling requirements is expected to be approximately 130,000 gpd based on evaporative heat content of water (12,000 btu/hour/ton of refrigeration) and blowdown resulting from 5 cycles of concentration (typically 20% of total make-up requirements).

1.4 Capacity of MATEP

There are future chilled water capacity constraints at MATEP. Various ways for Deaconess to provide for additional chilled water capacity are under review, including a system of satellite chillers interconnected to MATEP or a stand alone chiller plant owned and operated either by the Hospital or by MATEP.

IX. RESPONSE TO COMMENTS

IX. RESPONSE TO COMMENTS ON THE DPIR/DEIR

The following is the Certificate on the DEIR, the BRA's Preliminary Adequacy Determination, and comment letters received on the Draft Project Impact Report/Draft Environmental Impact Report (DPIR/DEIR).

1.0 Certificate of the Secretary of Environmental Affairs on the DEIR, December 16, 1993

2.0 Boston Redevelopment Authority, Preliminary Adequacy Determination on the DPIR, February 11, 1994

3.0 City of Boston Environment Department, December 3, 1993

4.0 Boston Water and Sewer Commission, December 8, 1993

5.0 Boston Redevelopment Authority, December 2, 1993

1.0 CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE DEIR

Received From: Trudy Coxe, Secretary

Date: December 6, 1993

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street. Boston. 02202

WILLIAM F. WELD
GOVERNOR

ARGEO PAUL CELLUCCI
LIEUTENANT GOVERNOR

TRUDY COXE
SECRETARY

Tel: (617) 727-9800
Fax: (617) 727-2754

December 16, 1993

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : New England Deaconess Hospital Research Facility
PROJECT LOCATION : 169-171 Pilgrim Road - Boston
EOEA NUMBER : 8776
PROJECT PROPONENT : New England Deaconess Hospital Corporation
DATE NOTICED IN MONITOR : November 9, 1993

The Secretary of Environmental Affairs herein issues a statement that the Draft Environmental Impact Report (EIR) submitted on the above project adequately and properly complies with the Massachusetts Environmental Policy Act (G. L., c. 30, s. 61-62H) and with its implementing regulations (301 CMR 11.00).

The proposed project consists of the construction of an eleven story research facility of 295,000 square feet (sf) (with another two floors below grade) on a 22,000 sf site. The site is currently occupied by a two story building containing 26,588 sf of space. It is located in the Longwood Medical Area (LMA) which is a 175 acre area within Boston bounded by Huntington Avenue, The Fenway, and the Riverway. The building is proposed at 175 feet tall. In the April 23, 1993, Notice of Project Change (NPC), the proponent proposed the construction of a 325,000 sf research facility of twelve floors. The project involves the consolidation and relocation of the proponent's research programs from other facilities on the hospital campus to this proposed facility.

Total new employment at the facility is estimated at 75 new positions. The proposed project is estimated to generate about 52 trips during the morning peak hour and 53 trips during the evening peak. No new parking facilities are proposed as part of this project. However, the proponent will reduce the amount of traffic generated from these 75 additional employees by aggressively promoting: transit pass subsidies (1994 = 40 percent and 1998 = 50 percent); educational programs; increasing employee parking fees; ridesharing; improved bicycle facilities; off-site parking; an emergency-ride-home program for employees who rideshare; and flexible hours. Any parking for new employees will be provided off-campus in existing leased facilities. The proponent will not provide parking spaces on-campus or in the LM to new employees.

No pedestrian area in or near the site is expected to have winds that exceed the Boston Redevelopment Authority's (BRA) gus guideline of 31 mph more than once in 100 hours for the build condition. The project is estimated to consume about 58,000 gallons per day (gpd) of water, and it will generate approximately 52,500 gpd of sanitary flow. The closed loop water chiller plant on the Pilgrim Road Garage roof will consume about 130,000 gpd over its projected six months of annual operation. The proposed cooling tower blowdown will generate 27,300 gpd int the sanitary system on an annual basis. As part of this project, the Pilgrim Road Garage drainage system will be routed through a sand interceptor and through an oil separator prior to being discharged into the storm drainage system. The proponent has als proposed a new park of approximately 6,000 sf adjacent to the 3 Riverway apartment building along Autumn Street on the site of the temporary MRI Building. The MRI Building will be demolished after completion of the new clinical facility.

The FEIR should explain in detail how the trip generation
1.1 rates were developed for this project and compare them with EOE
#9428 and 9452's trip generation rates. A copy of the land use
1.2 code (760) graphs and equations should be included in the FEIR.
The FEIR must also include the average annual weekday traffic
1.3 volumes generated by the project for 24 hours. It should explai
what will happen to existing research space when it is vacated
1.4 the proponent. How many vehicle trips will any reuse of this
existing space generate?

The FEIR should provide more specific details regarding th
1.5 proponent's commitments to improved bicycle facilities, and a
transportation demand management program designed to reduce
single occupancy vehicle use. Why are senior management exempt
1.6 from the parking restrictions imposed on other employees? The
FEIR should identify/estimate the trace amounts of chemical or
biological waste which will be discharged into the sanitary
1.7 system and the air ventilation system. It should explain the
1.8 details regarding the proposed park, such as who will control

site, is this permanent or temporary, maintenance, etc. Because there is increased shadow on the Boston's Riverway Park during the autumnal equinox and the winter solstice, the FEIR should **1.9** identify the specific parkland vegetation impacted, and a trained botanist/arboreal specialist should be consulted to identify mitigation measures to lessen impacts. The proponent should also consult with the Boston Landmarks Commission and the Boston Park Department to develop a mitigation package to reduce any negative impacts on parkland vegetation before completing the FEIR. The FEIR should recognize that the Muddy River and the Riverway Park **1.10** are listed on the National Register of historic places.

The proponent's efforts to develop and implement a transportation demand management program are commendable and comprehensive because they include the entire hospital campus and not just this proposed building. Thirty percent of the proponent's employees use the MBTA transit services to get to work. I encourage the proponent to continue its efforts to reduce the number of vehicle trips to its facility. In addition, revisions to the project have substantially reduced water consumption and sanitary flow generation; provided for treatment of stormwater runoff from the Pilgrim Road Parking Garage; reduced the height of the proposed building by 12 feet; and provided 6,000 sf of parkland in a very congested area.

I remain concerned about the cumulative impacts of proposed development in the LMA. As stated in the Certificate of November 1, 1993, on EOEA# 9428, "there appears to be a need for transportation system improvements that could be far-reaching." Because larger scale transportation/transit improvements are beyond the scope of individual project's impacts, project proponents are reminded of the importance of the short-range improvements proposed as mitigation for each individual project. I encourage the proponent to participate with MASCO, as well as City of Boston and state agencies, in any discussions and studies **1.11** which evaluate the feasibility of a circulatory shuttle bus in the LMA and other infrastructure improvements.

The FEIR should address all comments on the DEIR. It should summarize and identify the highlights of mitigation measures which have been committed to by the proponent and others. The **1.12** proponent should meet with the BRA and the Boston Transportation Department to ensure that mitigation will be adequately identified and addressed within the FEIR. The FEIR should include

1.13 a Draft Section 61 Finding listing mitigation, the timing of mitigation, and who is responsible for mitigation.

December 16, 1993
Date

Trudy Coxe
Trudy Coxe

Comments received : BRA, 12/2/93
Boston Environment Dept., 12/3/93
BWSC, 12/8/93

TC/WTG/wg

1.0 CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE DEIR

1.1 Explanation of Trip Generation Rates

Trip generation for the Research Facility Project was analyzed in two manners. In one case, the DPIR/DEIR utilized ITE Land Use Code 760 (Appendix B2) which represents Research & Development (R&D) space. The analysis used the number of net new employees (75) as the basis for the projection shown in Table IV.3-1 of the DPIR/DEIR. However, the DPIR/DEIR trips were not adjusted for modal share data developed through the Hospital's employee survey. The Dana-Farber DPIR/DEIR (EOEA #9452) conducted a similar analysis, adjusting the ITE volumes by modal share.

Since the survey identified specific trip characteristics for the Hospital, and this Project is substantially a reassignment of existing research space to the new facility, it was deemed appropriate to estimate the number of trips according to historical hospital specific data. The DEIR for EOEA #9428 (Harvard Institutes of Medicine) conducted a similar analysis. The following table summarizes the number of new employees and the vehicle trips for each of the three projects.

Comparison of Vehicle Trip Generation

	# New	AM Peak		PM Peak		
Project	**Employees**	**Enter**	**Exit**	**Enter**	**Exit**	**Daily**
New England Deaconess Hospital Research Facility[1]	75*	15	0	0	8	44
New England Deaconess Hospital Research Facility[2]	75*	25	5	5	26	209
Harvard Institutes of Medicine (EOEA #9428)[3]	745	82	8	10	52	910
Dana-Farber Cancer Institute (EOEA #9452)[4]	420	160	33	28	154	1,345
Dana-Farber Cancer Institute (EOEA #9452)[5]	420	90	19	16	93	789

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[1] Based upon Hospital specific data.

* 75 net new employees; 225 employees to be relocated from other research space owned or leased by New England Deaconess Hospital.

[2] ITE Land Use Code 760 adjusted for Modal Share and Vehicle Occupancy.

[3] Harvard Institutes of Medicine, Draft Environmental Impact Report (EOEA #9428), VHB, Inc., September, 1993.

[4] ITE Land Use Code 760 for 290,000 sf building adjusted for Modal Share.

[5] ITE Land Use Code 760 adjusted for Modal Share by employees.

1.2 Include a Copy of Land Use Code (760) Graphs and Equations

Appendix B contains a copy of the requested data.

1.3 Average Annual Weekday Traffic Volumes

Table IV.3-1 displays the adjusted ADT volumes expected from this Project.

1.4 Vehicle Trips Generated by Reuse of Existing Research Space

As described in Section 3.0 of Chapter III of the FPIR/FEIR, new vehicle trips are not expected from reuse of existing research space following relocation of these uses to the Research Facility. The Hospital's Cancer Research Institute's Building will be initially used as decompression space for existing hospital uses which are in over-crowded space at the Hospital. The other two buildings (at 21 - 27 Burlington Avenue and 99 Brookline Avenue) are owned by Children's and Beth Israel Hospitals, respectively. Consistent with overall trends at Deaconess and other LMA hospitals, expansion areas have generally been used for decompression of existing overcrowded facilities with no increase in new employees. Therefore, additional vehicle trips are not expected to be generated from the vacated space in these two other buildings.

1.5 Commitments to Improve Bicycle Facilities and Reduce Single Occupancy Vehicle Use

The Hospital and the Boston Transportation Department are currently negotiating a Transportation Access Plan Agreement which will specify the measures to be taken by the Hospital to reduce single occupant vehicle use. This will include a commitment to provide access to on-campus shower and locker facilities for bicyclists, and the provision of ample, secure, protected, convenient and free bicycle parking areas.

1.6 Exemption of Senior Management from Parking Restrictions

Senior management personnel comprises less than 3% of total hospital employees; however, they require nearby, convenient parking to allow them to fulfill their daily job requirements. `Deaconess in recent years has become the central base of operations for a number of satellite community hospitals and health centers including Deaconess Nashoba Hospital in Groton, Massachusetts. In addition, the Hospital is currently negotiating affiliation agreements with additional satellite hospitals which are expected to be finalized over the next year. As a result, the Hospital's senior managers will increasingly be required to utilize their automobiles frequently throughout the day in order to attend meetings and complete management assignments at these facilities which are outside of the LMA.

1.7 Identification and Estimates of Trace Amounts of Chemical or Biological Waste Discharged into the Sanitary System and the Air Ventilation System

While air is vented from laboratories to the rooftop's short stacks, extending about 185 feet above grade, the amount of emissions will be far less than the one ton per year threshold requiring DEP Air Plans Approval Permitting, under 310 CMR 7.02. Although the laboratory space has not been entirely defined, typical emissions includes trace amounts of organic solvents including alcohols. Because of the relatively small quantities of chemicals used in a research laboratory and the intermittent use of fume hoods, most laboratory ventilation will not generally require special filtration or scrubbing. It should be noted also that a portion of the project emissions will be displaced from at least one laboratory currently located on-campus.

1.8 Explanation of Who Will Own, Control and Maintain Proposed Open Space at Site of MRI Building

The open space proposed on the site of the temporary MRI Building will be owned, operated, and maintained by the Hospital. See Chapter VI, Urban Design Component for a discussion of this new open space.

1.9 Identification of Specific Park land Vegetation Impacted by Increase of Shadows on the Riverway

The effects new shadows cast by the Project on vegetation within the Riverway Park have been further examined during the Autumnal Equinox (September 21) and the Winter Solstice (December 21) during the time periods of 9:00 a.m. to 12:00 noon. An HMM botanist completed an inventory of vegetation in the area of the Riverway Park to be affected by new shadows on January 31, 1994.

The vegetation in the park is comprised of hardy species. The dominant vegetative components are the red oaks and beech trees. Red oak trees are well suited for development in city conditions. City conditions include: poor soil, insufficient light, insufficient water, and excessive smoke and gas fumes in the air, all of which affect growth. Red oak trees are often planted in city settings. They are among the best suited trees for withstanding city conditions (Wyman 1990).[1] The American beech is similar to the northern red oak. The beech prefers full sunlight but can withstand shaded conditions (DIRR, 1983).[2] In both instances, the increase in shadows for a duration of less than 3 hours at a time when all plants are dormant, is expected to have no impact on the Riverway Park vegetation.

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[1] Wyman, D., 1990 Trees for American Gardens. Third edition. New York: Macmillan Publishing Company.

[2] DIRR, M., 1983 Manual of Woody Landscape Plants: Their identification, ornamental characteristics, cultures, propagation and uses. Stipes, Illinois.

1.10 Inclusion of Olmsted Park as an Historic Resource

The FPIR/FEIR identifies Olmsted Park, including the Riverway and the Muddy River, as an historic resource. See Chapter VII, Historic Resources, for additional discussion of Olmsted Park.

1.11 Discussion of the Feasibility of a Circulatory Shuttle Bus in the LMA

The Medical Academic and Scientific Community Organization (MASCO) has formed a group of over 35 large employers in the circumferential corridor, called Circumferential Transit Employers Coalition, to educate private sector business and public agencies on the need for accelerated transit planning to serve the economic development needs of the corridor's institutions and businesses. Please see attached February 4, 1993 letter from MASCO's Sarah Hamilton to Kip McClelland of New England Deaconess Hospital for additional discussion of this issue. Chapter IV of the FPIR/FEIR also provides additional discussion of this regional mitigation strategy.

1.12 Discussion of Mitigation with BRA and Boston Transportation Department (BTD)

The Hospital has had an on-going discussion with BTD and BRA to review the appropriate mitigation. A draft Transportation Access Plan (TAP) Agreement has been prepared by BTD and the Hospital.

1.13 Listing of Mitigation, Timing of Mitigation, and Who is Responsible for Mitigation

Appendix J provides a Draft Section 61 Format as requested by the DEIR Certificate.

2.0 BOSTON REDEVELOPMENT AUTHORITY, PRELIMINARY ADEQUACY DETERMINATION ON THE DPIR

Received From:	Beverley Johnson, Assistant Director for Institutional Planning and Development
Date:	February 11, 1994

Boston Redevelopment Authority

Clarence J. Jones, *Chairman*
Paul L. Barrett, *Director*

February 11, 1994

Mr. Kermit McClelland
Vice President
New England Deaconess
 Hospital Corporation
185 Pilgrim Road
Boston, MA 02215

Dear Mr. McClelland:

Re: Research Facility Project

This letter is the Preliminary Adequacy Determination (the "Determination") of the Boston Redevelopment Authority (the "BRA") with respect to the Draft Project Impact Report (the DPIR) for the proposed Research Facility Project (the Proposed Project).

The BRA is issuing this Determination pursuant to the development review requirements of Section 31-5 of the Boston Zoning Code (the "Code"). This Determination requests additional information required by the BRA for its review pursuant to Article 31 which the New England Deaconess voluntarily agreed to undergo. Article 31 of the Code, Development Review Requirements, sets out a comprehensive procedure for project review, and requires the issuance of a Final Adequacy Determination prior to issuance of a building permit. The Final Adequacy Determination is issued upon determination by the BRA that the Final Project Impact Report (the "FPIR") is satisfactory.

But for the required corrections, clarifications, and additional information referenced in the attached Technical Appendix, the DPIR submitted is sufficient to satisfy the scoping requirements of Article 31.

We look forward to reviewing the Final Project Impact Report.

Sincerely,

Beverley E. Johnson

Beverley E. Johnson
Assistant Director for
Institutional Planning and Development

TECHNICAL APPENDIX
TO THE
PRELIMINARY ADEQUACY DETERMINATION
FOR
NEW ENGLAND DEACONESS HOSPITAL
RESEARCH/DORMITORY/COLLEGE FACILITY PROJECT

DEVELOPMENT REVIEW REQUIREMENTS - ARTICLE 31

Article 31 of the Code institutes a process by which large-scale development projects will be reviewed by the BRA. In its review of the DPIR, the BRA has identified certain components which are insufficient and which the proponent must modify, and additional information which the BRA requires in order to issue a Final Adequacy Determination. The following is a description of the sufficiency of the materials submitted in the DPIR, and the additional materials which the Proponent must include in the FPIR.

II. GENERAL INFORMATION

The general information provided in the DPIR is sufficient to satisfy the scoping requirements with the exception of the presentation on the alternatives, public benefits and financial data.

1.0 Applicant Information

Pp. II-1,
2.1 II-4: The lot size should be more definitively described and be clearly delineated on Figure II.3-1.

2.0 Financial Information

2.2 The proponent should identify proposed sources of financing.

III. PROJECT DESCRIPTION AND ALTERNATIVES

1.0 Project Description and Alternatives

2.3 Pg. III-1: To where will the maintenance and laundry facilities be relocated when the Maintenance Building is demolished?

4.0 Alternatives: Intermediate Build

Pg. III-5: An alternative "Intermediate Build" Scheme was considered to address the MEPA Scope. This Scheme has a height of 147' of floor space. In this option, two laboratory floors were removed from the building mass.

We conclude with the assessment presented in the DPIR that the environmental and transportation impacts of this Intermediate Build Scheme are not substantially less than the impacts of the "project", i.e., the preferred scheme. Furthermore, the "project" has been reduced in both height, mass, and density from the initial proposal so as to mitigate the urban design impacts in a manner satisfactory to the Boston Civic Design Commission.

IV. TRANSPORTATION COMPONENT

The information provided in the DPIR with respect to circulation is sufficient to satisfy the scoping requirements. Given the amount of analysis of area conditions which is already available, the BTD takes the position that further analysis of the study area conditions is not necessary.

Parking, construction impacts, pedestrian and bicycle circulation, on the other hand,
2.4 need to be addressed further in the FPIR with specific commitments detailed in the
Access Plan.

The BTD is currently drafting a Transportation Access Plan ("TAP") Agreement for
2.5 execution between the City of Boston and the Proponent. A TAP Agreement must be
substantially finalized prior to the formal issuance of a Final Adequacy Determination
by the BRA.

In order to understand how the proposed mitigation measures will diminish the
demand for parking, mode splits (disaggregated by doctors, visitors, and staff) should
2.6 be presented for both the unmitigated situation and the mitigated situation. The
contribution of each mitigation measure to the change in modal split for each trip
maker category should be shown. Mitigation measures should detail strategies for
locating staff in the various lots, proposed rate structures, and provisions for preferred
spaces.

2.7 Construction impacts will affect the area's parking supply. No mention has been mad
of how the hospital proposes to address this interim shortfall of spaces.

The need to provide an adequate pedestrian and bicycle system to and from the
2.8 hospital has been clearly stated in the DPIR. A qualitative analysis should be
undertaken to clarify pedestrian desire lines and the adequacy of the existing
2.9 circulation system. Improved access for pedestrians to the major bus and transit

locations, both during and after the construction phases, should be analyzed. Various public and private improvements need to be considered and wherever possible adopted. Specific commitments to encourage greater use of bicycles should be identified and a map prepared. The provision of locker changing facilities and bicycle storage in a secure area should at a minimum be provided.

Table IV.1-6:

Footnote is missing (asterisk after P.D.O.).

V. ENVIRONMENTAL COMPONENT

The information and analysis provided in the DPIR concerning environmental impacts of the Proposed Project are sufficient to satisfy the scoping requirements with the exception of the following:

1.0 Pedestrian Level Winds

Pg. V.1-16:

2.10 (Sect. 1.5.2, ¶3) - Should "Longwood Avenue" (ll. 2,3) be "Brookline Avenue?"

2.0 Shadow Analysis

2.11 (1) The shadows from the proposed cooling towers atop the adjacent Pilgrim Road Garage are not shown nor are their impacts evaluated. Three new analyses including the cooling towers on the garage should be presented for December 21 at 3:00 p.m., March 21 at 3:00 p.m., and June 21 at 6:00 p.m. If the non-winter studies show an increase in shadows from the cooling towers, then additional analyses should be conducted.

2.12 (2) A 6 p.m. summer shadow was requested in the original MEPA Certificate; this was not provided. It appears as though 4 or 5 pm shadows in spring and fall months may impact the fields at the corner of Longwood and Brookline Avenue as well.

3.0 Daylight Study

2.13 The Autumn Street area diagrams (proposed project) appear questionable, although it is understood that the variations between diagram and numeral readings are most likely due to the program reading of property line setback. The daylight obstruction of the proposed project (75.4% obstruction) is an understandable consequence of the project but a dramatic impact which needs to be addressed. The BRA has tested daylight obstruction assuming the demolition of the Deaconess Building and a projected replacement structure which is set back 30 feet from the research building. Under this scenario, the percent obstruction would be reduced to roughly 50%. This compares to a value, which includes the existing neighboring Deaconess structure with the proposed project, of about 70%, an improvement of 20%. This analysis should be confirmed. In addition, the FPIR should state that consideration will be given by the Hospital in connection with any future design and construction of any new structure on the existing Deaconess Building Site to setbacks and/or use of materials which would maximize transmission of daylight onto Pilgrim Road.

7.0 Solid and Hazardous Wastes

2.14 (1) The Site Assessment Report should be summarized in the FPIR, including relevant tables and figures from the report.

2.15 (2) It is recommended that, to the extent feasible, demolition and construction waste be recycled instead of being disposed of in landfills. A commitment to this effect should be included in the FPIR/FEIR.

9.0 Noise Analysis

2.16 (1) All noise measurement locations (including appendix data) appear to have been at ground level. For the future noise projections (the height of the receptors is not given), an upper level location for the apartment buildings, closer to the rooftop noise source, would be more appropriate to evaluate impact. If not already done, modelling should be performed at upper level bedrooms which face the cooling towers in order to evaluate the impacts and proposed mitigation actions.

(2) Tables V. 9-3 to V. 9-9 incl.: At what height are the receptor locations (ground or upper floor)? This should be specified. As noted above, an upper level receptor would be more appropriate for the rooftop noise sources.

VI. URBAN DESIGN COMPONENT

General: The information presented in the DPIR, together with the submission of required schematic documents and supplemental documents, are adequate.

VII. HISTORIC RESOURCES COMPONENT

The information provided in the DPIR concerning historic resources is sufficient to satisfy the scoping requirements, with the following correction.

2.17 Pg. VII-3: (¶2) The proposed project will be 11 stories tall, not 6 stories (as stated here).

VIII. INFRASTRUCTURE SYSTEMS COMPONENT

The information provided in the DPIR concerning infrastructure systems is sufficient to satisfy the scoping requirements, but for the following information which the FPIR must include:

2.18 The background for infrastructure is not made clear - i.e., whether all LMA projects are included. For water, i.e., the demand should be stated in terms of percentage of available capacity. The chiller (peak) demand is not added to the gpm figure given on page VIII-2; if chiller peak were to be taken at the same ratio as daily demand peak, then total peak could reach 400 gpm in a pipe with 950 gpm capacity, or a system with ca. 2400 gpm capacity - a significant draw given development proposed in the area. The same general comment applies to sewage generation, limited by a 2.56 or (2.72) MGD capacity segment with unknown total tributary area.

Pp. VIII-5 ff:

2.19 (3.0 Sanitary Sewer and Storm Water System) - Although sewer capacities are given, there is no evaluation of the adequacy of these sewers to handle projected generation. This should be included in the FPIR/FEIR.

Pp. VIII-9 ff:

2.20 (4.1 Heating and Cooling Requirements) - The makeup water needs to be calculated for the proposed cooling towers.

Pp. VIII-9 ff:

2.21 (4.0 Energy Systems) - Does MATEP have the capacity to serve the proposed project? An analysis should be included in the FPIR.

IX. AGREEMENTS

2.22 In addition to completing the Development Review Requirements process, the agreements, plans and documents listed below must be provided in form and content satisfactory to the appropriate signatory public agencies before building permits may be issued for the project:

A. Transportation Access Plan (TAP) Agreement;

B. Traffic Maintenance Plan in conformity with the City's Construction Management Program;

C. Boston Residents Construction Employment Plan, pursuant to Chapter 12 of the Ordinances of 1986 of the City of Boston, as amended by Chapter 17 of said Ordinances, and Executive Order Extending Boston Residents Job Policy, signed by the Mayor on July 12, 1985; and

D. First Source Agreement with the Mayor's Office of Jobs and Community Services.

E. Development Impact Project Agreement pursuant to Article 26-26B of the Zoning Code.

F. Cooperation Agreement.

2.0 BOSTON REDEVELOPMENT AUTHORITY, PRELIMINARY ADEQUACY DETERMINATION ON THE DPIR

2.1 Applicant Information/Lot Size

As shown in Figure II-2, the legal lot size for the Project is 36,205 square feet (.831 acres). See Chapter II, Section 1.1 Project Identification, and Chapter II, Section 3.0 Project Area, for additional information.

2.2 Financial Information/Sources of Financing

For a discussion of sources of financing for the Project, see Chapter II, Section 2.0 Financial Information.

2.3 Relocation of Maintenance Facilities

The maintenance operation will be moved to the basement of the Deaconess Building, and the day care facilities, currently in the Maintenance Building, will be moved into a Hospital-owned building at 21 Autumn Street (formerly 306 The Riverway). The laundry facility identified in the DPIR/DEIR was relocated from the site some time ago, which was not reflected in the earlier report.

2.4 Parking, Construction Impacts, and Pedestrian and Bicycle Circulation to be Addressed

The Transportation Access Plan addresses commitments by the Hospital to these subjects. Chapter IV discusses Project parking requirements and pedestrian circulation, and Chapter VI discusses pedestrian and bicycle circulation improvements.

2.5 Completion of Transportation Access Plan

The Transportation Access Plan Agreement is in draft form and is currently being finalized between the Hospital and BTD.

2.6 Modal Splits, Disaggregated by Doctors, Visitors, and Staff, and Contribution of Each Mitigation Measure by Trip Maker

An employee survey was conducted by the Hospital to provide current commuting pattern information. The modal share was determined for the occupational categories of doctors, nurses, technical professional, and other. The technical professional staff includes all technicians and researchers. The results show that for doctors, 80% drive alone during their commute, while 10% use rapid transit. The results for nurses were quite similar, with 79% driving alone and 11% using rapid transit. The technical professional staff has a higher percentage, 29%, using rapid transit and a lower percentage than the doctors and nurses driving alone, 54%. The rest of the hospital employees are equally using both modes of driving alone and rapid transit, 42%.

Transportation Mode	Doctor	Nurses	Technical Professional	Other
T/Rapid Transit	10%	11%	29%	42%
Drive Alone	80%	79%	54%	42%
T/Commuter Rail	0%	<1%	6%	4%
T/Bus, MASCO & Commuter	<1%	<1%	<1%	<1%
Car Pool	<1%	6%	1%	3%
Van Pool	<1%	2%	2%	2%
Walk/Bicycle	8%	2%	7%	6%

2.7 Effect of Construction Impacts on Parking Supply

No construction parking will be allowed on the Hospital campus. Workers will be encouraged to use public transportation. The Hospital's parking outside the LMA will be made available to construction workers as will the shuttle link from these locations to the Hospital.

2.8 Bicycle and Pedestrian Systems

See Response to Comment 2.4.

2.9 Improved Access for Pedestrians to the Major Bus & Transit Locations, Both During and After Construction

See Response to Comment 2.4.

2.10 Pedestrian Level Winds

In the DPIR/DEIR, page V.1-16, Section 1.5.2, the third paragraph should read, "The NW wind blowing down Joslin Park toward Brookline Avenue, when it gets to the Dana-Farber Cancer Institute across Brookline Avenue, is turned backward, and results in a slight SE wind blowing across Brookline Avenue at pedestrian level and a little way into Joslin Park (Category 4)."

2.11 Shadow Impacts from Cooling Towers on Roof of Pilgrim Road Garage

The shadow impacts from the cooling towers on the roof of the Pilgrim Road Garage are expected to create a slight increase in the existing shadows on the Longwood Avenue facade and roof of the 375 Longwood Avenue building. These impacts are fully analyzed in Chapter V, Section 1.0 Shadow Impacts.

2.12 Inclusion of 6:00 PM Summer and 5:00 PM Spring Shadows

The analysis of the 6:00 PM summer shadow and 5:00 PM spring shadow is included in Chapter V, Section 1.0 Shadow Impacts.

2.13 Daylight Mitigation on Pilgrim Road

Mitigation studies for daylight obstruction from the Pilgrim Road viewpoint are discussed in Chapter V, Section 2.0 Daylight Impacts. This chapter also confirms that consideration will be given by the Hospital in connection with any future design and construction of any new structure on the existing Deaconess Building site to setbacks and/or use of materials which would maximize transmission of daylight and Pilgrim Road.

2.14 Site Assessment Report

The Site Assessment Report is summarized in Chapter V, Section 3.0 Solid and Hazardous Waste. In addition, a copy of the report has been submitted to the BRA, and is available for review upon request.

2.15 Discussion of Recycling Demolition and Construction Waste

The Hospital will take an active role with regard to the reprocessing and recycling of demolition waste. The Hospital's demolition disposal contract will include specific requirements that will ensure that demolition procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials. For further discussion of practices for reuse and recycling of demolition waste being considered, see Chapter V, Section 3.0 Solid and Hazardous Waste.

2.16 Noise Analysis Measurement Locations

A site survey was conducted in the DPIR/DEIR to identify locations that may be most affected by noise from the Project. This survey included obtaining access to the roof of the existing Maintenance Building and the roof of the Pilgrim Road Parking Garage. The sound generated by city street traffic and HVAC equipment at neighboring facilities was heard throughout the area. It was observed that the ambient noise levels at elevated locations was higher than at ground level locations. As is pointed out in the PAD, this is possibly due to the fact that ground level locations are farther from the rooftop equipment and that the buildings provide some shielding from distant noise sources. As a result of this observation, all measurement locations were selected at a point 5 feet from the ground level, which is approximately the height of the ears of a standing person of average height. Therefore, it is conservative to use the measured ground noise level to establish the ambient baseline, since areas with lower ambient levels will be more affected by new noise sources.

To maintain a conservative impact evaluation, it was also appropriate to evaluate receptor locations where the noise levels from the Project are highest. Noise level estimates were made at each receptor location based on the noise source-receptor pair that produced the highest noise level at that location. For further discussion of noise measurements, locations, and analysis, see Chapter V, Section 4.0 - Noise.

2.17 Historic Resources/Height of Research Facility

The last sentence of the second paragraph on page VII-3 of the DPIR/DEIR should read, "The proposed building will be similar in massing, being eleven stories tall, and similar in materials, being a combination of masonry, stone and glass."

2.18 Clarification of Background for Infrastructure

Background information on the cooling towers is provided in Chapter VIII Infrastructure Component.

2.19 Evaluation of Adequacy of Sewer Systems

BWSC has indicated that no overflow problems currently are observed in the sewer line evaluated for the Project and that sufficient available capacity is present in the system. The sanitary sewer connection will be made to an existing 12-inch sewer under Pilgrim Road. This line continues under Pilgrim Road to an intersection with a 20-inch x 24-inch sewer at Pilgrim Road and Francis Street. The sewer continues from this intersection under Francis Street to the Riverway where it connects to an 18-inch sewer. This sewer continues under the Riverway and over land to the Muddy River where it connects to a Town of Brookline sewer.

2.20 Makeup Water for Proposed Cooling Towers

Peak make-up water for cooling requirements is expected to be approximately 130,000 gpd based on evaporative heat content of water (12,000 Btu/hour/ton of refrigeration) and blowdown resulting from 5 cycles of concentration (typically 20% of total make-up requirements).

2.21 Capacity of Medical Area Total Energy Plant (MATEP)

There are future chilled water capacity constraints at MATEP. Various ways for Deaconess to provide for additional chilled water capacity are under review, including a system of satellite chillers interconnected to MATEP, or a stand alone chiller plant either owned and operated by Deaconess or MATEP.

2.22 *Status of Development Review Agreements*

The Boston Residents Construction Employment Plan, First Source Agreement, Development Impact Project Agreement and the Cooperation Agreement have all been fully executed by the Hospital and the appropriate City of Boston agency or department. The Transportation Access Plan is in draft form and is currently being finalized, and the Construction Traffic Maintenance Plan will be finalized prior to the start of construction.

3.0 CITY OF BOSTON ENVIRONMENT DEPARTMENT

Received From: Lorraine M. Downey, Director

Date: December 3, 1993

City of Boston
The Environment
Department

THOMAS M. MENINO
Mayor

Lorraine M. Downey
Director

Boston City Hall/Room 805
Boston, Massachusetts 02201
617/635-4416 or 635-3850

December 3, 1993

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge St. 20th Floor
Boston, MA 02202

Attn.: William Gage, MEPA Unit
RE: EOEA #8776, New England Deaconess Research Facility, Boston

Dear Secretary Coxe:

The City of Boston Environment Department has reviewed the Draft Environmental Impact Report/ Draft Project Impact Report (DEIR/DPIR) for the proposed project referenced above and hereby submits the following comments in response:

Overall, the DEIR/DPIR adequately addresses the issues of concern to the Environment Department, and adequately responds to the issues presented in the MEPA and BRA scopes. The Environment Department therefore recommends that the Secretary certify the adequacy of the DEIR/DPIR. The document adequately analyzes alternatives to the proposed project, and the Environment Department accepts the claims that the environmental impacts of the full build (175 foot tall building of 295,000 sf) will not differ significantly from the reduced build (147 foot structure of 251,000 sf).

The DEIR/DPIR presents a detailed traffic and parking mitigation package which aggressively pursues transit and alternative forms of commuting. The proposed transit subsidy program puts New England Deaconess in the forefront of Longwood Medical Area institutions regarding traffic and parking management. The Environment Department encourages the proponent to continue aggressive promotion of alternatives to the single occupant private vehicle.

The proponent projects an overall 5% modal share for walking/cycling to its Longwood facilities by 1998. The Environment Department considers this percentage a good start, but encourages the proponent to aim for a combined 10% modal share for these forms of commuting.

3.1 The DEIR/DPIR does not identify the Riverway as an historic resource. The Muddy River and surrounding parkland has received formal designation as a Boston Landmark, however, and is also listed on the National Register. The proponent should correct this oversight in the FEIR/FPIR. The Environment Department remains concerned with the proposed generation of new shadows on the Riverway projected for September 9:00 AM and December 9:00 AM. (The reduced build does not prevent this additional shading.)

The proponent should consult with the staff of the Boston Landmarks Commission to
3.2 develop a reasonable form of mitigation for this unavoidable negative impact. The
Environment Department would consider the provision of funding for maintenance of
park in the vicinity of the newly shaded areas appropriate compensation for the increase
shadow impacts.

The City is currently preparing a master plan for the entire Longwood Medical Area. T
flurry of recent planning and construction activity in the LMA necessitates close
coordination among the member institutions, the City, and the Commonwealth. The
3.3 FEIR/FPIR should explain the relationship of the Deaconess project to other recent LM
projects, how the projects fits into the City's master plan, and how Deaconess will ensu
the degree of coordination necessary to make the project a successfully integrated part o
the LMA.

In summary, the Environment Department recommends that the Secretary find the DEIR/DPIR adequate, and looks forward to an FEIR/FPIR which outlines methods o increasing walking/cycling among Deaconess' commuters and develops mitigation/compensation for the area of shadow which the new building will cast on th Riverway.

I thank you for your time and attention.

Sincerely,

Lorraine M. Downey

Lorraine M. Downey
Director

LMD/AP:ap

3.0 CITY OF BOSTON ENVIRONMENT DEPARTMENT

3.1 Inclusion of Riverway as an Historic Resource

Chapter VII, Historic Resources Component discusses Olmsted Park, including the Riverway and the Muddy River, as historical resources.

3.2 Mitigation for the Generation of New Shadows on the Riverway

As described in the Response to Comment 1.9, the effects of the shading on the Riverway resulting from the Project are minor. The Project results in increased shadows on the Riverway at 9:00 AM during the autumnal equinox and the winter solstice. The shadows, however, have moved from the Riverway by noon in both time periods. In both instances, the increase in shadows for a duration of less than three hours at a time when all plants are dormant, is expected to have no impact on the Riverway vegetation. These findings were discussed in a meeting with the Boston Environment Department and Landmarks Commission staff on February 3, 1994.

The Hospital is creating additional open space throughout the area. The Hospital has contributed to the Joslin Park and is creating a new open space at the site of the existing MRI building which will soon be demolished. The Hospital's proposed open space has been the subject of numerous meetings with the Parks and Recreation Department. The Hospital will continue to meet with the Parks and Recreation Department and the BRA.

3.3 Discussion of Relationship of the Deaconess Project to Other Recent LMA Projects

Deaconess Hospital is an active participant in City-sponsored master planning for the Longwood Medical Area. This effort, being directed by the Boston Redevelopment Authority in coordination with LMA institutional representatives and residential community participants from nearby Fenway and Mission Hill, is scheduled for completion in calendar 1994. The Research Facility project has been reviewed by the BRA as it relates to the current LMA planning effort. The Project is consistent with general principles guiding this study, including the avoidance of negative impacts on the City's existing housing stock or on existing park land or open space resources. It also consolidates existing inefficient uses into one facility which is an objective of the City's planning.

The Deaconess Project is being planned at the same time that Dana-Farber Cancer Institute is proposing a research facility (EOEA #9452) on the other side of Brookline Avenue, and Harvard Institutes of Medicine is proposing the renovation of the former English High School to a Research Facility (EOEA #9428). All three projects demonstrate the importance of new research to the survival and leadership of these institutions in their key research areas. Research supports not only medical education but clinical excellence, a critical aspect of all of these Harvard teaching hospitals.

Finally, the construction planning of all of these new projects will be coordinated to minimize street occupancy and traffic disruption. This coordination will occur through the Transportation Access Plan Agreements with the City which are required for each project proponent.

4.0 BOSTON WATER AND SEWER COMMISSION

Received From: John P. Sullivan, Jr., P.E., Chief Engineer

Date: December 8, 1993

In its comment letter, the Boston Water and Sewer Commission (BWSC) stated that the DPIR/DEIR adequately addressed their concerns.

Boston Water and
Sewer Commission

425 Summer Street
Boston, MA 02210-1700
617-330-9400
Fax 617-330-5167

December 8, 1993

Ms. Trudy Coxe, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th floor
Boston, MA 02202

Attn: MEPA Unit

Re: Draft Project/Environmental Impact Report
New England Deaconess Hospital
Research Facility Project
EOEA No. 8776

Dear Secretary Coxe:

The Commission has reviewed the Draft Project/Environmental Impact Report (DP/EIR) for the New England Deaconess Hospital (NEDH) Research Facility Project. The site is located between Pilgrim Road and Autumn Street on the site of NEDH's maintenance building and extends into the hospital's temporary buildings along Autumn Street.

Since the Notice of Project Change (NPC) in the Spring of 1993, the Research Facility project has been reduced from a twelve story to an eleven story building. The total floor area of the eleven story building is 295,000 gross square feet (gsf). NEDH has also included an Alternative Scheme which is a nine story building.

The water demand for the eleven story building is 188,000 gallons per day (gpd), which includes the 130,000 gpd of water consumed by the cooling towers. The cooling towers, located on the roof of the parking garage, have been reduced from 6,000 ton capacity in the NPC to 3,000 tons.

The domestic sanitary sewage generated by his project will be approximately 52,200 gallons per day. In addition, approximately 27,300 gpd from cooling tower blowdown will be discharged to the sanitary sewer on an annual basis.

The Commission finds that our earlier comments have been adequately addressed.

As mentioned in our review of the NPC, the proponent will required to submit a site plan to the Commission. Since t project is a medical research facility, the proponent should ref to the Article IV of the Commission's Sewer Use Regulations.

Thank you for the opportunity to comment on this project.

Sincerely yours,

John P. Sullivan, Jr., P.E.
Chief Engineer

JPS/LB/PK/gf
cc: Kermit McClelland, V.P., NEDH
Mitchell Fischman, HMM
Richard Mertens, BRA
P.J. Foley, BWSC
Susan Norton, MWRA

5.0 BOSTON REDEVELOPMENT AUTHORITY

Received From	Paul Reavis, Assistant Director for Engineering and Design Services
Date:	December 2, 1993

In its comment letter, the Boston Redevelopment Authority confirmed that the Draft Environmental Impact Report (DEIR) was also being submitted as a Draft Project Impact Report (DPIR), and stated that it would issue a Preliminary Adequacy Determination on the DPIR/DEIR following a 30-day public review period.

Boston
Redevelopment
Authority

Clarence J. Jones, *Chairman*
Paul L. Barrett, *Director*

BG

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DEC 3 1993
MEPA

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attention: MEPA Unit

Dear Secretary Coxe:

Re: EOEA #8776 - New England Deaconess Hospital Research Facility
Draft Environmental Impact Report

Pursuant to regulations implementing M.G.L., Chapter 30, Sections 62-62H, the Boston Redevelopment Authority submits the following comments with regard to the above-referenced Draft Environmental Impact Report.

In voluntary compliance with the requirements of Article 31 of the Boston Zoning Code, the Draft Environmental Impact Report for the New England Deaconess Hospital Research Facility project in the Longwood Medical Area of Boston also has been filed as a Draft Project Impact Report. The Boston Redevelopment Authority currently is completing its review of this report and will be issuing a Preliminary Adequacy Determination to the project proponent following the 30-day public review period. A copy of the Preliminary Adequacy Determination will be forwarded to your office at that time.

The BRA will request approval of the Research Facility at its Board Meeting of December 22. The project has been unanimously approved by the Mission Hill PZAC and by the Boston Civic Design Commission.

Sincerely,

Paul Reavis
Assistant Director for Engineering
and Design Services

cc: Mr. Kermit McClelland
Vice President for Facilities
New England Deaconess Hospital

One City Hall Square

APPENDIX A

Preliminary Adequacy Determination on the DPIR and Certificate of the Secretary on the DEIR

Boston
Redevelopment
Authority

Clarence J. Jones, *Chairman*
Paul L. Barrett, *Director*

February 11, 1994

Mr. Kermit McClelland
Vice President
New England Deaconess
Hospital Corporation
185 Pilgrim Road
Boston, MA 02215

Dear Mr. McClelland:

Re: Research Facility Project

This letter is the Preliminary Adequacy Determination (the "Determination") of the Boston Redevelopment Authority (the "BRA") with respect to the Draft Project Impact Report (the DPIR) for the proposed Research Facility Project (the Proposed Project).

The BRA is issuing this Determination pursuant to the development review requirements of Section 31-5 of the Boston Zoning Code (the "Code"). This Determination requests additional information required by the BRA for its review pursuant to Article 31 which the New England Deaconess voluntarily agreed to undergo. Article 31 of the Code, Development Review Requirements, sets out a comprehensive procedure for project review, and requires the issuance of a Final Adequacy Determination prior to issuance of a building permit. The Final Adequacy Determination is issued upon determination by the BRA that the Final Project Impact Report (the "FPIR") is satisfactory.

But for the required corrections, clarifications, and additional information referenced in the attached Technical Appendix, the DPIR submitted is sufficient to satisfy the scoping requirements of Article 31.

We look forward to reviewing the Final Project Impact Report.

Sincerely,

Beverley E. Johnson

Beverley E. Johnson
Assistant Director for
Institutional Planning and Development

Attachment

One City Hall Square
Boston, Massachusetts 02201-1007
Telephone (617) 722-4300
Fax (617) 367-5916

TECHNICAL APPENDIX
TO THE
PRELIMINARY ADEQUACY DETERMINATION
FOR
NEW ENGLAND DEACONESS HOSPITAL
RESEARCH/DORMITORY/COLLEGE FACILITY PROJECT

DEVELOPMENT REVIEW REQUIREMENTS - ARTICLE 31

Article 31 of the Code institutes a process by which large-scale development projects will be reviewed by the BRA. In its review of the DPIR, the BRA has identified certain components which are insufficient and which the proponent must modify, and additional information which the BRA requires in order to issue a Final Adequacy Determination. The following is a description of the sufficiency of the materials submitted in the DPIR, and the additional materials which the Proponent must include in the FPIR.

II. GENERAL INFORMATION

The general information provided in the DPIR is sufficient to satisfy the scoping requirements with the exception of the presentation on the alternatives, public benefits and financial data.

1.0 Applicant Information

Pp. II-1,
II-4: The lot size should be more definitively described and be clearly delineated on Figure II.3-1.

2.0 Financial Information

The proponent should identify proposed sources of financing.

III. PROJECT DESCRIPTION AND ALTERNATIVES

1.0 Project Description and Alternatives

Pg. III-1: To where will the maintenance and laundry facilities be relocated when the Maintenance Building is demolished?

4.0 Alternatives: Intermediate Build

Pg. III-5: An alternative "Intermediate Build" Scheme was considered to address the MEPA Scope. This Scheme has a height of 147' of floor space. In this option, two laboratory floors were removed from the building mass.

We conclude with the assessment presented in the DPIR that the environmental and transportation impacts of this Intermediate Build Scheme are not substantially less than the impacts of the "project", i.e., the preferred scheme. Furthermore, the "project" has been reduced in both height, mass, and density from the initial proposal so as to mitigate the urban design impacts in a manner satisfactory to the Boston Civic Design Commission.

IV. TRANSPORTATION COMPONENT

The information provided in the DPIR with respect to circulation is sufficient to satisfy the scoping requirements. Given the amount of analysis of area conditions which is already available, the BTD takes the position that further analysis of the study area conditions is not necessary.

Parking, construction impacts, pedestrian and bicycle circulation, on the other hand, need to be addressed further in the FPIR with specific commitments detailed in the Access Plan.

The BTD is currently drafting a Transportation Access Plan ("TAP") Agreement for execution between the City of Boston and the Proponent. A TAP Agreement must be substantially finalized prior to the formal issuance of a Final Adequacy Determination by the BRA.

In order to understand how the proposed mitigation measures will diminish the demand for parking, mode splits (disaggregated by doctors, visitors, and staff) should be presented for both the unmitigated situation and the mitigated situation. The contribution of each mitigation measure to the change in modal split for each trip maker category should be shown. Mitigation measures should detail strategies for locating staff in the various lots, proposed rate structures, and provisions for preferred spaces.

Construction impacts will affect the area's parking supply. No mention has been made of how the hospital proposes to address this interim shortfall of spaces.

The need to provide an adequate pedestrian and bicycle system to and from the hospital has been clearly stated in the DPIR. A qualitative analysis should be undertaken to clarify pedestrian desire lines and the adequacy of the existing circulation system. Improved access for pedestrians to the major bus and transit

locations, both during and after the construction phases, should be analyzed. Various public and private improvements need to be considered and wherever possible adopted. Specific commitments to encourage greater use of bicycles should be identified and a map prepared. The provision of locker changing facilities and bicycle storage in a secure area should at a minimum be provided.

Table IV.1-6:

Footnote is missing (asterisk after P.D.O.).

V. ENVIRONMENTAL COMPONENT

The information and analysis provided in the DPIR concerning environmental impacts of the Proposed Project are sufficient to satisfy the scoping requirements with the exception of the following:

1.0 Pedestrian Level Winds

Pg. V.1-16:

(Sect. 1.5.2, ¶3) - Should "Longwood Avenue" (II. 2,3) be "Brookline Avenue?"

2.0 Shadow Analysis

(1) The shadows from the proposed cooling towers atop the adjacent Pilgrim Road Garage are not shown nor are their impacts evaluated. Three new analyses including the cooling towers on the garage should be presented for December 21 at 3:00 p.m., March 21 at 3:00 p.m., and June 21 at 6:00 p.m. If the non-winter studies show an increase in shadows from the cooling towers, then additional analyses should be conducted.

(2) A 6 p.m. summer shadow was requested in the original MEPA Certificate; this was not provided. It appears as though 4 or 5 pm shadows in spring and fall months may impact the fields at the corner of Longwood and Brookline Avenue as well.

3.0 Daylight Study

The Autumn Street area diagrams (proposed project) appear questionable, although it is understood that the variations between diagram and numeral readings are most likely due to the program reading of property line setback. The daylight obstruction of the proposed project (75.4% obstruction) is an understandable consequence of the project but a dramatic impact which needs to be addressed. The BRA has tested daylight obstruction assuming the demolition of the Deaconess Building and a projected replacement structure which is set

back 30 feet from the research building. Under this scenario, the percent obstruction would be reduced to roughly 50%. This compares to a value, which includes the existing neighboring Deaconess structure with the proposed project, of about 70%, an improvement of 20%. This analysis should be confirmed. In addition, the FPIR should state that consideration will be given by the Hospital in connection with any future design and construction of any new structure on the existing Deaconess Building Site to setbacks and/or use of materials which would maximize transmission of daylight onto Pilgrim Road.

7.0 Solid and Hazardous Wastes

(1) The Site Assessment Report should be summarized in the FPIR, including relevant tables and figures from the report.

(2) It is recommended that, to the extent feasible, demolition and construction waste be recycled instead of being disposed of in landfills. A commitment to this effect should be included in the FPIR/FEIR.

9.0 Noise Analysis

(1) All noise measurement locations (including appendix data) appear to have been at ground level. For the future noise projections (the height of the receptors is not given), an upper level location for the apartment buildings, closer to the rooftop noise source, would be more appropriate to evaluate impact. If not already done, modelling should be performed at upper level bedrooms which face the cooling towers in order to evaluate the impacts and proposed mitigation actions.

(2) Tables V. 9-3 to V. 9-9 incl.: At what height are the receptor locations (ground or upper floor)? This should be specified. As noted above, an upper level receptor would be more appropriate for the rooftop noise sources.

VI. URBAN DESIGN COMPONENT

General: The information presented in the DPIR, together with the submission of required schematic documents and supplemental documents, are adequate.

VII. HISTORIC RESOURCES COMPONENT

The information provided in the DPIR concerning historic resources is sufficient to satisfy the scoping requirements, with the following correction.

Pg. VII-3: (¶2) The proposed project will be 11 stories tall, not 6 stories (as stated here).

VIII. INFRASTRUCTURE SYSTEMS COMPONENT

The information provided in the DPIR concerning infrastructure systems is sufficient to satisfy the scoping requirements, but for the following information which the FPIR must include:

The background for infrastructure is not made clear - i.e., whether all LMA projects are included. For water, i.e., the demand should be stated in terms of percentage of available capacity. The chiller (peak) demand is not added to the gpm figure given on page VIII-2; if chiller peak were to be taken at the same ratio as daily demand peak, then total peak could reach 400 gpm in a pipe with 950 gpm capacity, or a system with ca. 2400 gpm capacity - a significant draw given development proposed in the area. The same general comment applies to sewage generation, limited by a 2.56 or (2.72) MGD capacity segment with unknown total tributary area.

Pp. VIII-5 ff:

> (3.0 Sanitary Sewer and Storm Water System) - Although sewer capacities are given, there is no evaluation of the adequacy of these sewers to handle projected generation. This should be included in the FPIR/FEIR.

Pp. VIII-9 ff:

> (4.1 Heating and Cooling Requirements) - The makeup water needs to be calculated for the proposed cooling towers.

Pp. VIII-9 ff:

> (4.0 Energy Systems) - Does MATEP have the capacity to serve the proposed project? An analysis should be included in the FPIR.

IX. AGREEMENTS

In addition to completing the Development Review Requirements process, the agreements, plans and documents listed below must be provided in form and content satisfactory to the appropriate signatory public agencies before building permits may be issued for the project:

A. Transportation Access Plan (TAP) Agreement;

B. Traffic Maintenance Plan in conformity with the City's Construction Management Program;

C. Boston Residents Construction Employment Plan, pursuant to Chapter 12 of the Ordinances of 1986 of the City of Boston, as amended by Chapter 17 of said Ordinances, and Executive Order Extending Boston Residents Job Policy, signed by the Mayor on July 12, 1985; and

D. First Source Agreement with the Mayor's Office of Jobs and Community Services.

E. Development Impact Project Agreement pursuant to Article 26-26B of the Zoning Code.

F. Cooperation Agreement.

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street. Boston, 02202

WILLIAM F. WELD
GOVERNOR
ARGEO PAUL CELLUCCI
LIEUTENANT GOVERNOR
TRUDY COXE
SECRETARY

Tel: (617) 727-9800
Fax: (617) 727-2754

December 16, 1993

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : New England Deaconess Hospital Research Facility
PROJECT LOCATION : 169-171 Pilgrim Road - Boston
EOEA NUMBER : 8776
PROJECT PROPONENT : New England Deaconess Hospital Corporation
DATE NOTICED IN MONITOR : November 9, 1993

The Secretary of Environmental Affairs herein issues a statement that the Draft Environmental Impact Report (EIR) submitted on the above project adequately and properly complies with the Massachusetts Environmental Policy Act (G. L., c. 30, s. 61-62H) and with its implementing regulations (301 CMR 11.00).

The proposed project consists of the construction of an eleven story research facility of 295,000 square feet (sf) (with another two floors below grade) on a 22,000 sf site. The site is currently occupied by a two story building containing 26,588 sf of space. It is located in the Longwood Medical Area (LMA) which is a 175 acre area within Boston bounded by Huntington Avenue, The Fenway, and the Riverway. The building is proposed at 175 feet tall. In the April 23, 1993, Notice of Project Change (NPC), the proponent proposed the construction of a 325,000 sf research facility of twelve floors. The project involves the consolidation and relocation of the proponent's research programs from other facilities on the hospital campus to this proposed facility.

Total new employment at the facility is estimated at 75 new positions. The proposed project is estimated to generate about 52 trips during the morning peak hour and 53 trips during the evening peak. No new parking facilities are proposed as part of this project. However, the proponent will reduce the amount of

traffic generated from these 75 additional employees by aggressively promoting: transit pass subsidies (1994 = 40 percent and 1998 = 50 percent); educational programs; increasing employee parking fees; ridesharing; improved bicycle facilities; off-site parking; an emergency-ride-home program for employees who rideshare; and flexible hours. Any parking for new employees will be provided off-campus in existing leased facilities. The proponent will not provide parking spaces on-campus or in the LMA to new employees.

No pedestrian area in or near the site is expected to have winds that exceed the Boston Redevelopment Authority's (BRA) gust guideline of 31 mph more than once in 100 hours for the build condition. The project is estimated to consume about 58,000 gallons per day (gpd) of water, and it will generate approximately 52,500 gpd of sanitary flow. The closed loop water chiller plant on the Pilgrim Road Garage roof will consume about 130,000 gpd over its projected six months of annual operation. The proposed cooling tower blowdown will generate 27,300 gpd into the sanitary system on an annual basis. As part of this project, the Pilgrim Road Garage drainage system will be routed through a sand interceptor and through an oil separator prior to being discharged into the storm drainage system. The proponent has also proposed a new park of approximately 6,000 sf adjacent to the 306 Riverway apartment building along Autumn Street on the site of the temporary MRI Building. The MRI Building will be demolished after completion of the new clinical facility.

The FEIR should explain in detail how the trip generation rates were developed for this project and compare them with EOEA #9428 and 9452's trip generation rates. A copy of the land use code (760) graphs and equations should be included in the FEIR. The FEIR must also include the average annual weekday traffic volumes generated by the project for 24 hours. It should explain what will happen to existing research space when it is vacated by the proponent. How many vehicle trips will any reuse of this existing space generate?

The FEIR should provide more specific details regarding the proponent's commitments to improved bicycle facilities, and a transportation demand management program designed to reduce single occupancy vehicle use. Why are senior management exempt from the parking restrictions imposed on other employees? The FEIR should identify/estimate the trace amounts of chemical or biological waste which will be discharged into the sanitary system and the air ventilation system. It should explain the details regarding the proposed park, such as who will control the

site, is this permanent or temporary, maintenance, etc. Because there is increased shadow on the Boston's Riverway Park during the autumnal equinox and the winter solstice, the FEIR should identify the specific parkland vegetation impacted, and a trained botanist/arboreal specialist should be consulted to identify mitigation measures to lessen impacts. The proponent should also consult with the Boston Landmarks Commission and the Boston Park Department to develop a mitigation package to reduce any negative impacts on parkland vegetation before completing the FEIR. The FEIR should recognize that the Muddy River and the Riverway Park are listed on the National Register of historic places.

The proponent's efforts to develop and implement a transportation demand management program are commendable and comprehensive because they include the entire hospital campus and not just this proposed building. Thirty percent of the proponent's employees use the MBTA transit services to get to work. I encourage the proponent to continue its efforts to reduce the number of vehicle trips to its facility. In addition, revisions to the project have substantially reduced water consumption and sanitary flow generation; provided for treatment of stormwater runoff from the Pilgrim Road Parking Garage; reduced the height of the proposed building by 12 feet; and provided 6,000 sf of parkland in a very congested area.

I remain concerned about the cumulative impacts of proposed development in the LMA. As stated in the Certificate of November 1, 1993, on EOEA# 9428, "there appears to be a need for transportation system improvements that could be far-reaching." Because larger scale transportation/transit improvements are beyond the scope of individual project's impacts, project proponents are reminded of the importance of the short-range improvements proposed as mitigation for each individual project. I encourage the proponent to participate with MASCO, as well as City of Boston and state agencies, in any discussions and studies which evaluate the feasibility of a circulatory shuttle bus in the LMA and other infrastructure improvements.

The FEIR should address all comments on the DEIR. It should summarize and identify the highlights of mitigation measures which have been committed to by the proponent and others. The proponent should meet with the BRA and the Boston Transportation Department to ensure that mitigation will be adequately identified and addressed within the FEIR. The FEIR should include

a Draft Section 61 Finding listing mitigation, the timing of mitigation, and who is responsible for mitigation.

December 16, 1993
Date

Trudy Coxe
Trudy Coxe

Comments received : BRA, 12/2/93
Boston Environment Dept., 12/3/93
BWSC, 12/8/93

TC/WTG/wg

APPENDIX B

Transportation: ITE Land Use Code

```
SUMMARY OF TRIP GENERATION CALCULATION
FOR  75  EMPLOYEES OF RESEARCH CENTER

______________________________________________________________________

                            AVERAGE    STANDARD    ADJUSTMENT   DR-WAY
                             RATE     DEVIATION      FACTOR     VOLUME
______________________________________________________________________

AVG WKDY 2-WAY VOL           4.79        0.00         1.00        359

7-9 AM PK HR ENTER           0.58        0.00         1.00         43
7-9 AM PK HR EXIT            0.12        0.00         1.00          9
7-9 AM PK HR TOTAL           0.69        0.00         1.00         52

4-6 PM PK HR ENTER           0.11        0.00         1.00          8
4-6 PM PK HR EXIT            0.60        0.00         1.00         45
4-6 PM PK HR TOTAL           0.70        0.00         1.00         53
______________________________________________________________________

SATURDAY 2-WAY VOL           0.90        0.00         1.00         67

PK HR ENTER                  0.00        0.00         1.00          0
PK HR EXIT                   0.00        0.00         1.00          0
PK HR TOTAL                  0.23        0.00         1.00         17

SUNDAY 2-WAY VOL             0.55        0.00         1.00         41

PK HR ENTER                  0.00        0.00         1.00          0
PK HR EXIT                   0.00        0.00         1.00          0
PK HR TOTAL                  0.00        0.00         1.00          0
______________________________________________________________________

Note: A zero rate indicates no rate data available
      The above rates were calculated from these equations:

24-Hr. 2-Way Volume:       LN(T) =  .784LN(X) +  2.499, R^2 =  .86
7-9 AM Peak Hr. Total:     LN(T) =  .758LN(X) +  .678
                           R^2 =  .89 ,  .83  Enter,  .17  Exit
4-6 PM Peak Hr. Total:     LN(T) =  .752LN(X) +  .716
                           R^2 =  .9 ,  .15  Enter,  .85  Exit
AM Gen Pk Hr. Total:       0
                           R^2 =  0 ,  0  Enter,  0  Exit
PM Gen Pk Hr. Total:       0
                           R^2 =  0 ,  0  Enter,  0  Exit
Sat. 2-Way Volume:         LN(T) =  .726LN(X) +  1.075, R^2 =  .49
Sat. Pk Hr. Total:         T =  .038(X) +  14.103
                           R^2 =  .56 ,  0  Enter,  0  Exit
Sun. 2-Way Volume:         LN(T) =  .688LN(X) +  .744, R^2 =  .4
Sun. Pk Hr. Total:         0
                           R^2 =  0 ,  0  Enter,  0  Exit

Source: Institute of Transportation Engineers
        Trip Generation, 5th Edition, 1991.

                      TRIP GENERATION BY MICROTRANS
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APPENDIX C

Revised Schematic Design Submission

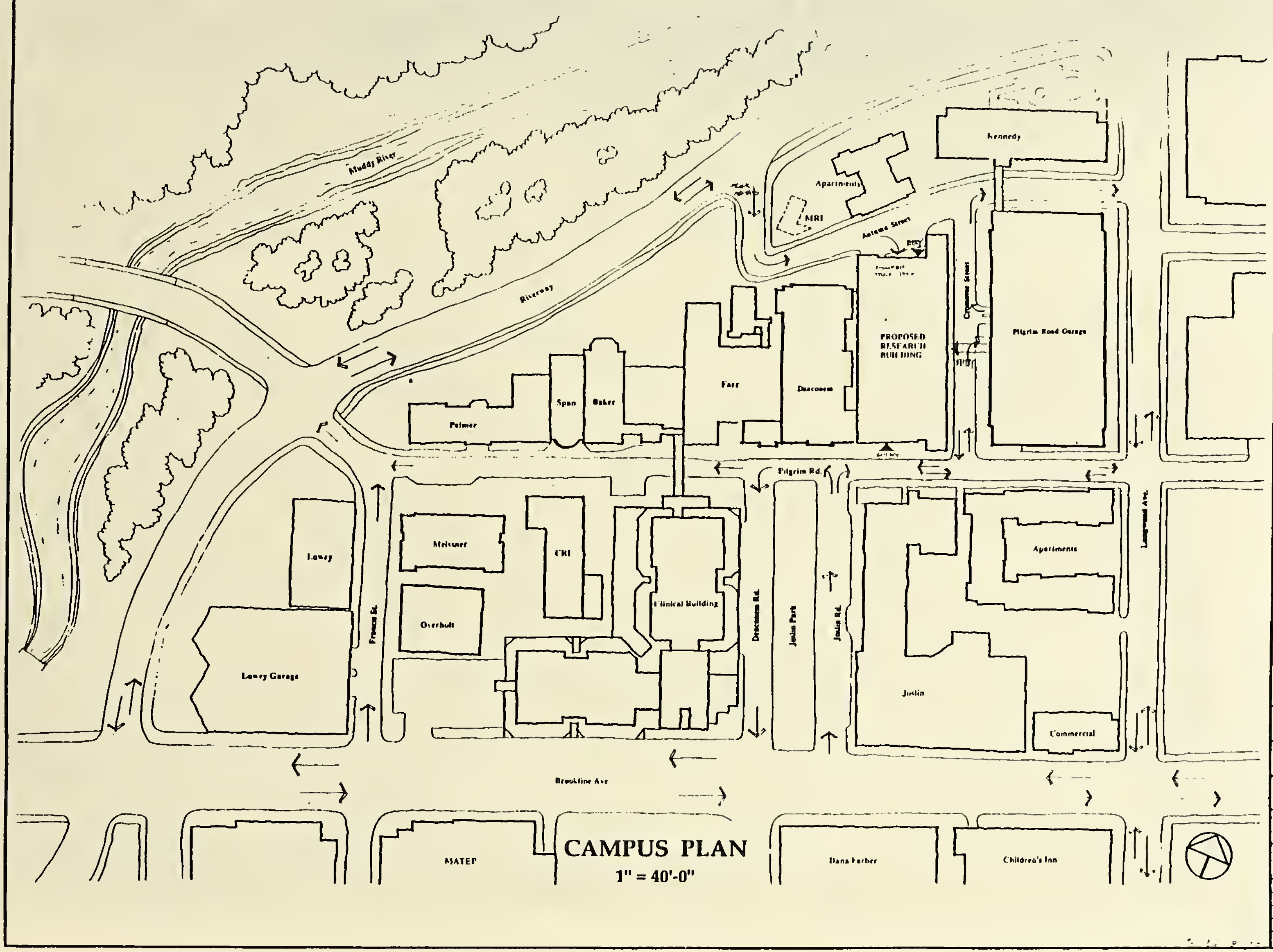
APPENDIX C - REVISED SCHEMATIC DESIGN SUBMISSION

The following is a list of revised materials which have been submitted to the BRA in accordance with the Scoping Determination dated May 17, 1993, and updated since the filing of the DPIR/DEIR. Copies of the drawings and photographs are included in the following pages.

- Campus Plan, December 13, 1993
- Aerial Photo, October 1, 1993
- Site Plan, October 1, 1993
- Sub-Basement Plan, October 1, 1993
- Basement Plan, October 1, 1993
- First Floor Plan, October 1, 1993
- Second Floor Plan, October 1, 1993
- Generic Floor Plan: Type 1 Laboratory, October 1, 1993
- Generic Floor Plan: Type 2 Laboratory, October 1, 1993
- Non-Generic 1 Floor Plan, December 13, 1993
- Non-Generic 2 Floor Plan, October 1, 1993
- Penthouse Plan, October 1, 1993
- Penthouse Mezzanine Plan, October 1, 1993
- Roof Plan, October 1, 1993
- Site Roof Plan, December 13, 1993
- West Elevation, October 1, 1993
- South Elevation, October 1, 1993
- East Elevation, October 1, 1993
- North Elevation, October 1, 1993
- North/South Exterior Elevations, December 13, 1993
- East/West Exterior Elevations, December 13, 1993
- North/South Sections West View, October 1, 1993
- East/West Sections North View, December 13, 1993
- Park and Planting Studies
- Mechanical Diagrams, July 6, 1993
- Model Views
- Existing Photos, June 1, 1993

The Design Development Materials will be submitted in mid-1994.

GENERAL NOTES



CAMPUS PLAN
1" = 40'-0"

→ TRAFFIC FLOW

REVISIONS

SHEPLEY BULFINCH RICHARDSON AND ABBOTT
ARCHITECTS
[illegible]

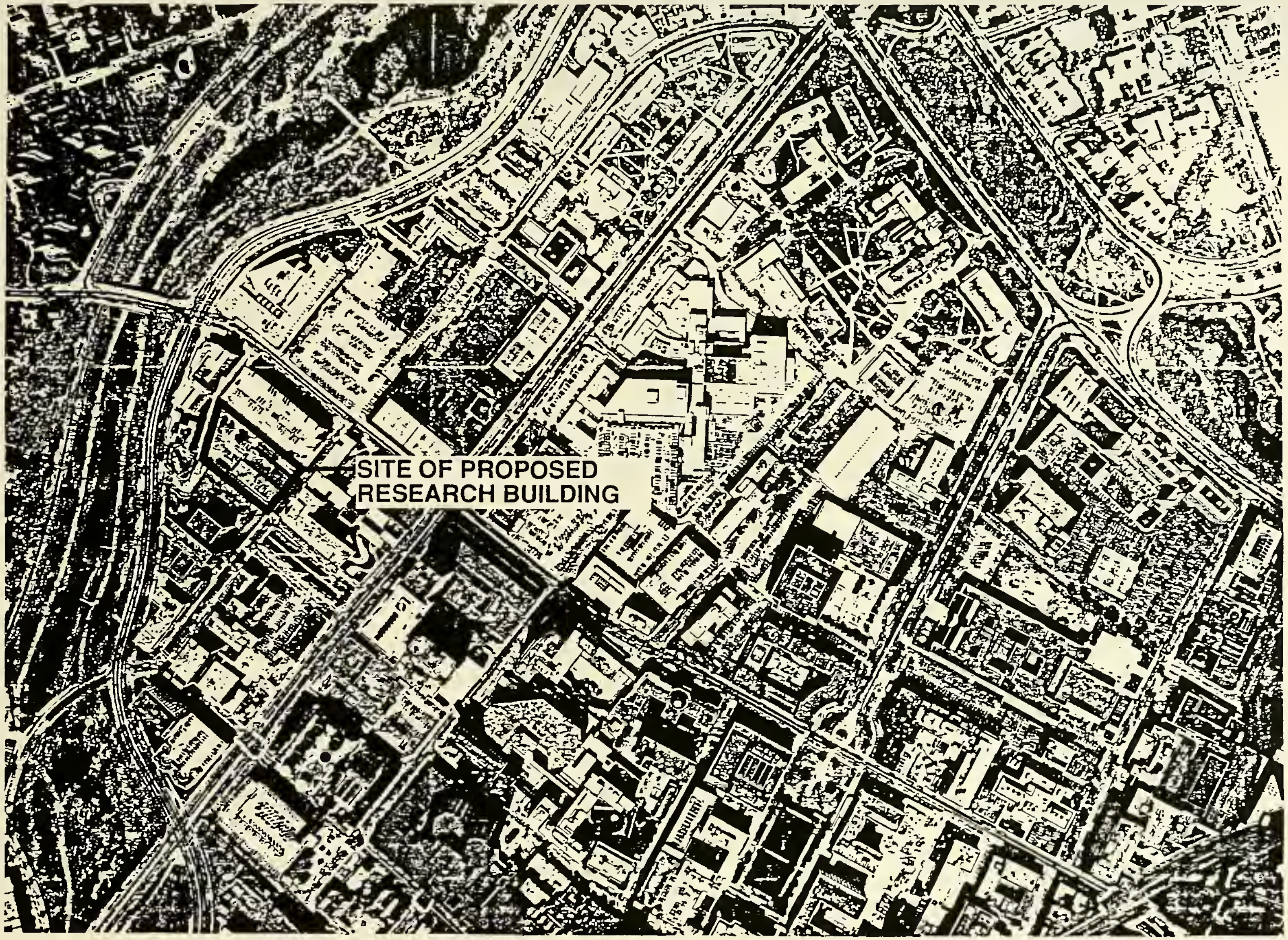
NEW ENGLAND
DEACONESS HOSPITAL

DEACONESS RESEARCH
BUILDING

NEIGHBORHOOD
PLAN

OCTOBER [illegible]
NO SCALE

N-1



REVISIONS

SHEPLEY BULFINCH RICHARDSON AND ABBOTT
ARCHITECTS

NEW ENGLAND
DEACONESS HOSPITAL

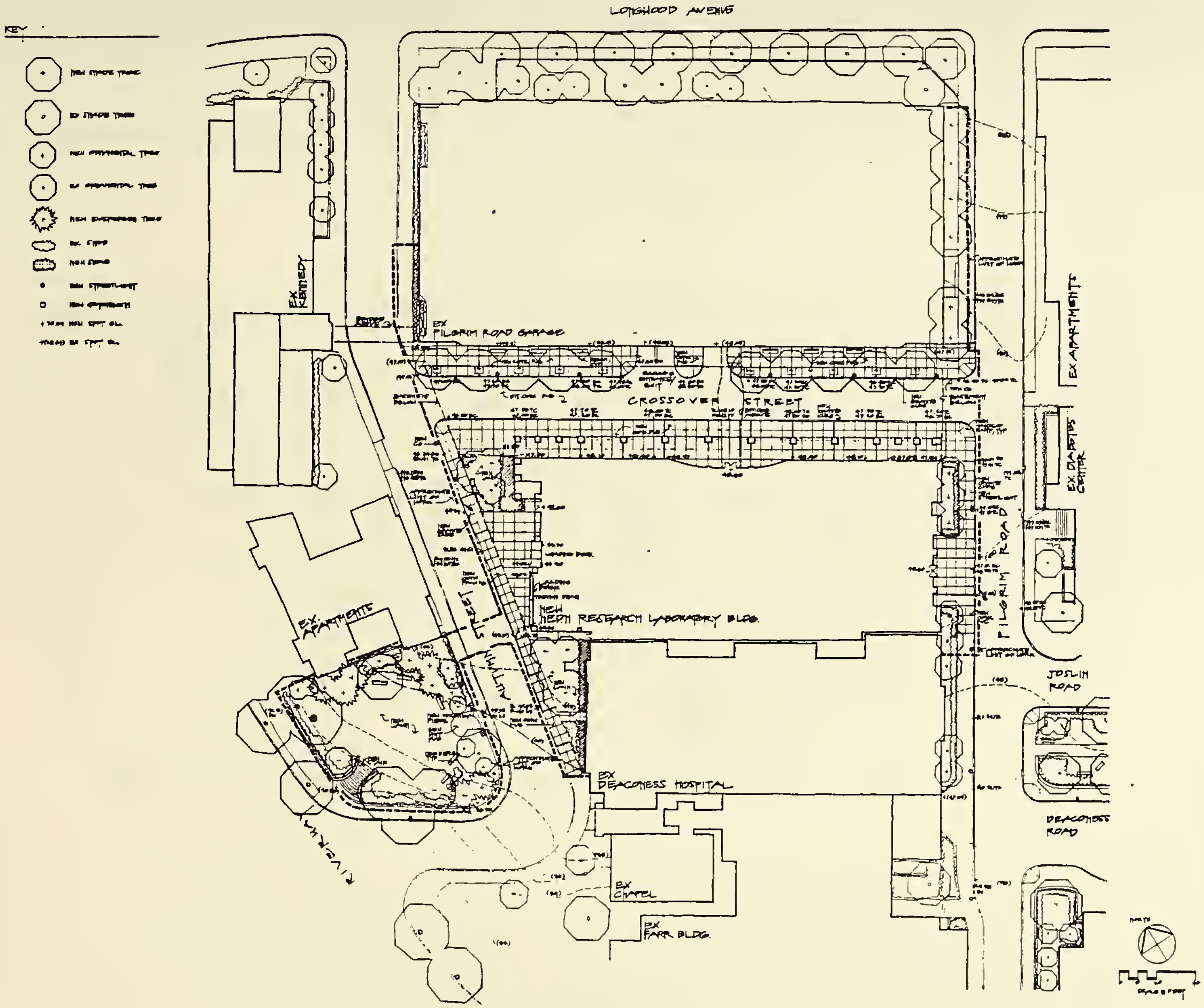
DEACONESS RESEARCH
BUILDING

AERIAL PHOTO

OCTOBER 1 [illegible]

NO SCALE

N-2



GENERAL NOTES

REVISIONS

WALKER KLUESING DESIGN GROUP

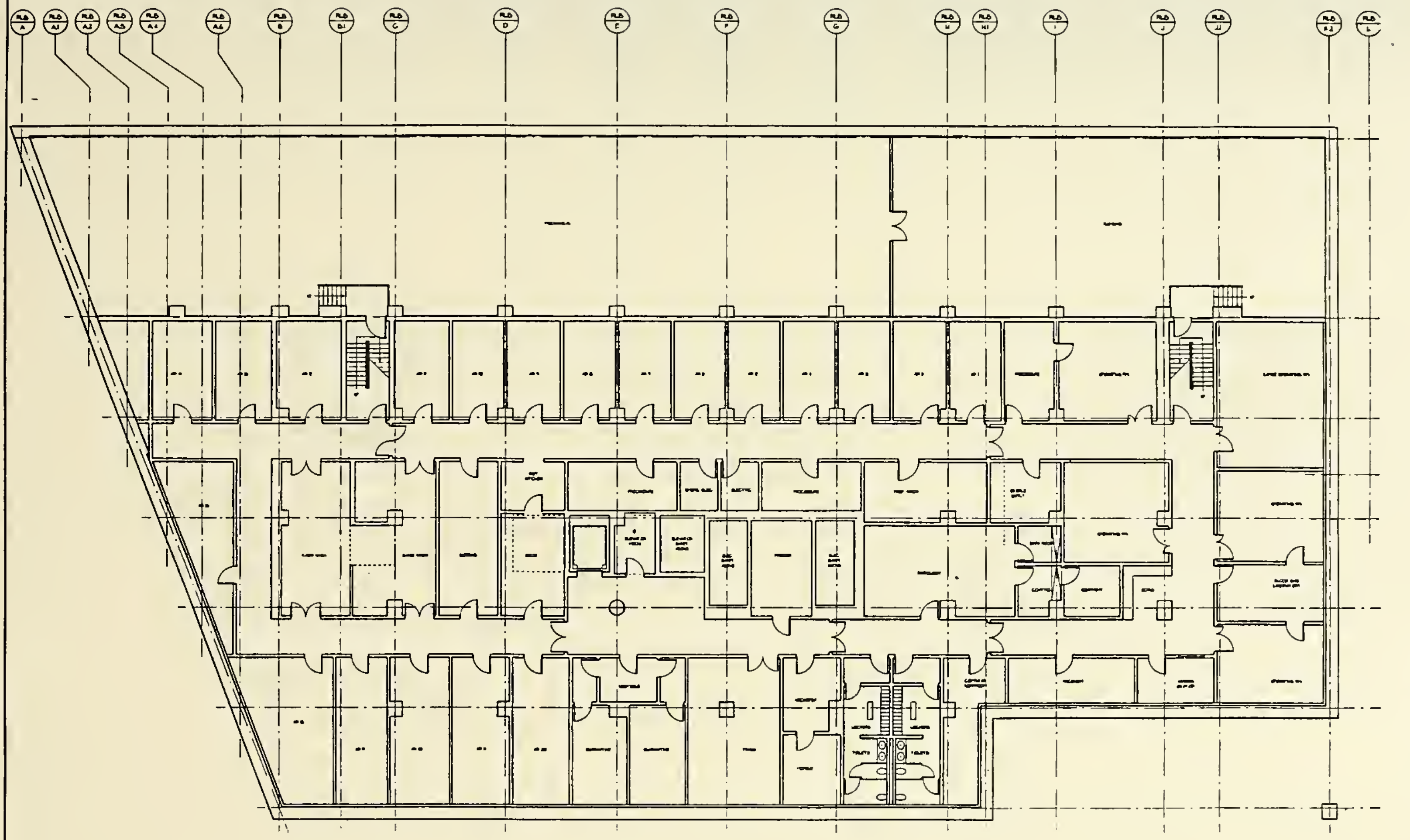
DEACONESS HOSPITAL

RESEARCH LABORATORY BUILDING

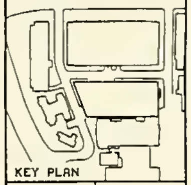
SITE PLAN

L-1

GENERAL NOTES



REVISIONS



KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

Research Laboratory Building

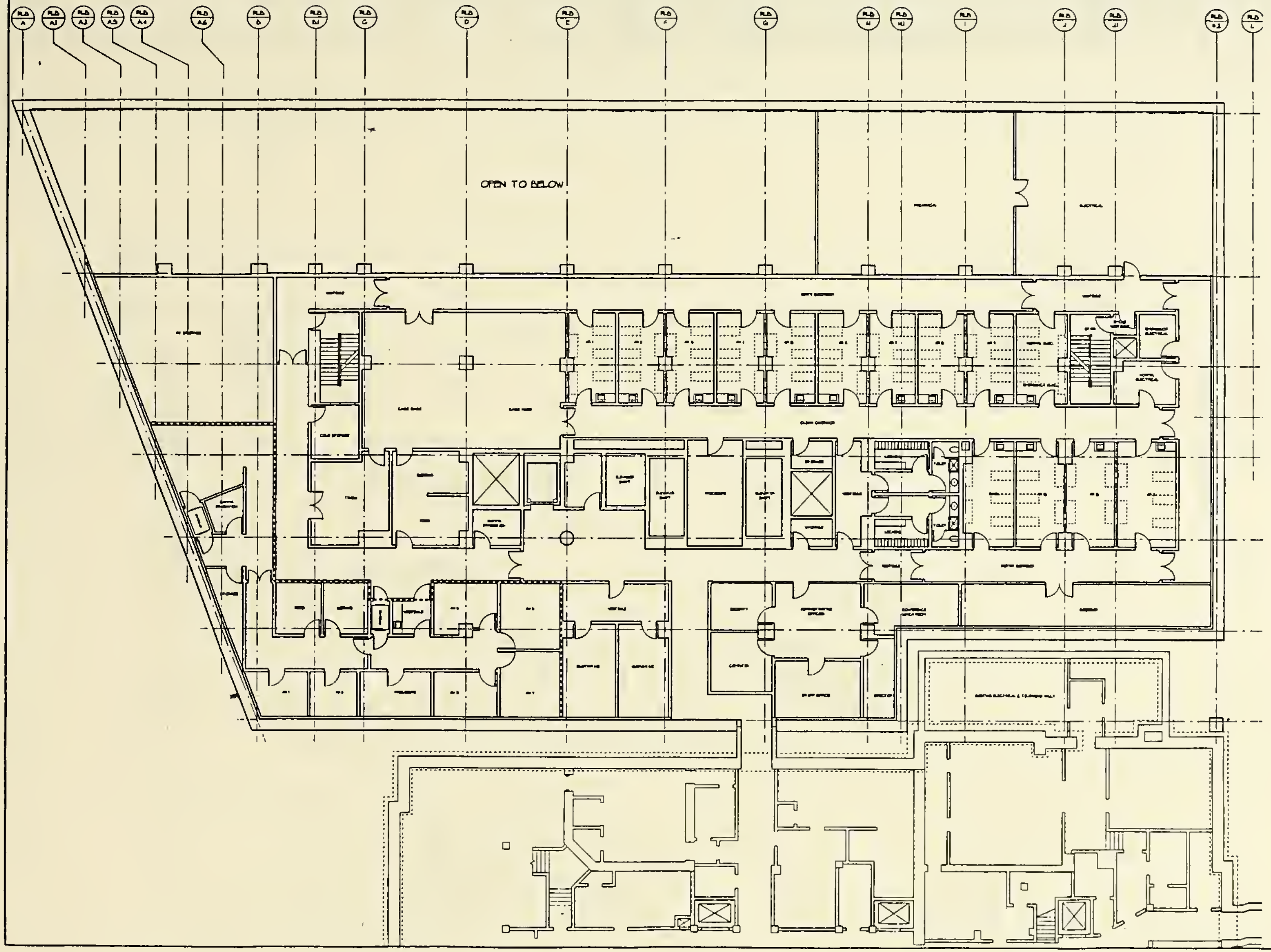
SubBasement Plan

OCTOBER 1, 1990

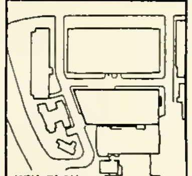
1/8" = 1'-0"

A1-1.1

GENERAL NOTES



REVISIONS


KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

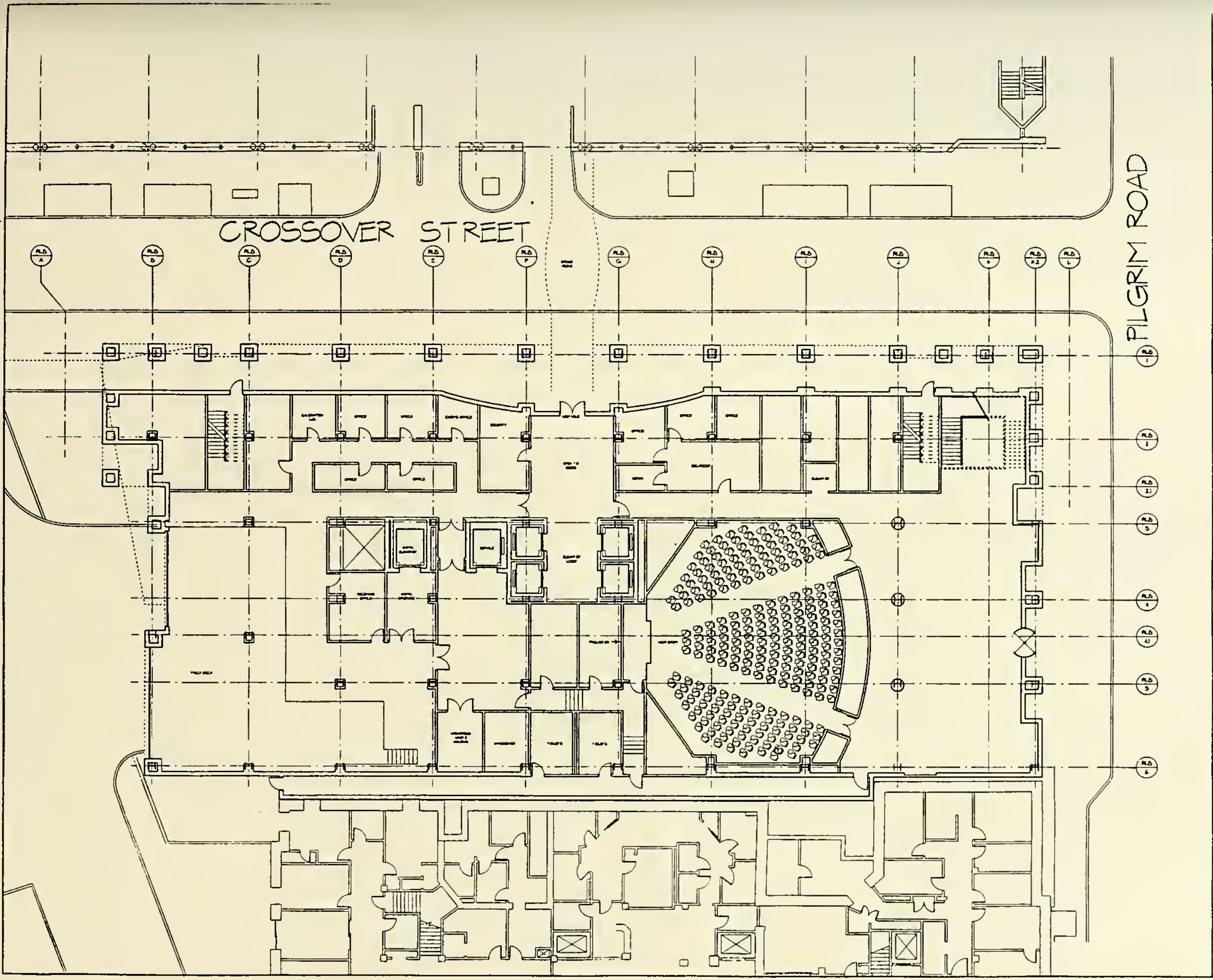
Research Laboratory Building

Basement Plan

OCTOBER 1, 1990

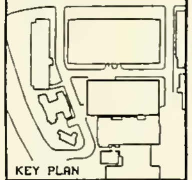
1/8" = 1'-0"

A1-1.2



GENERAL NOTES

REVISIONS


KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

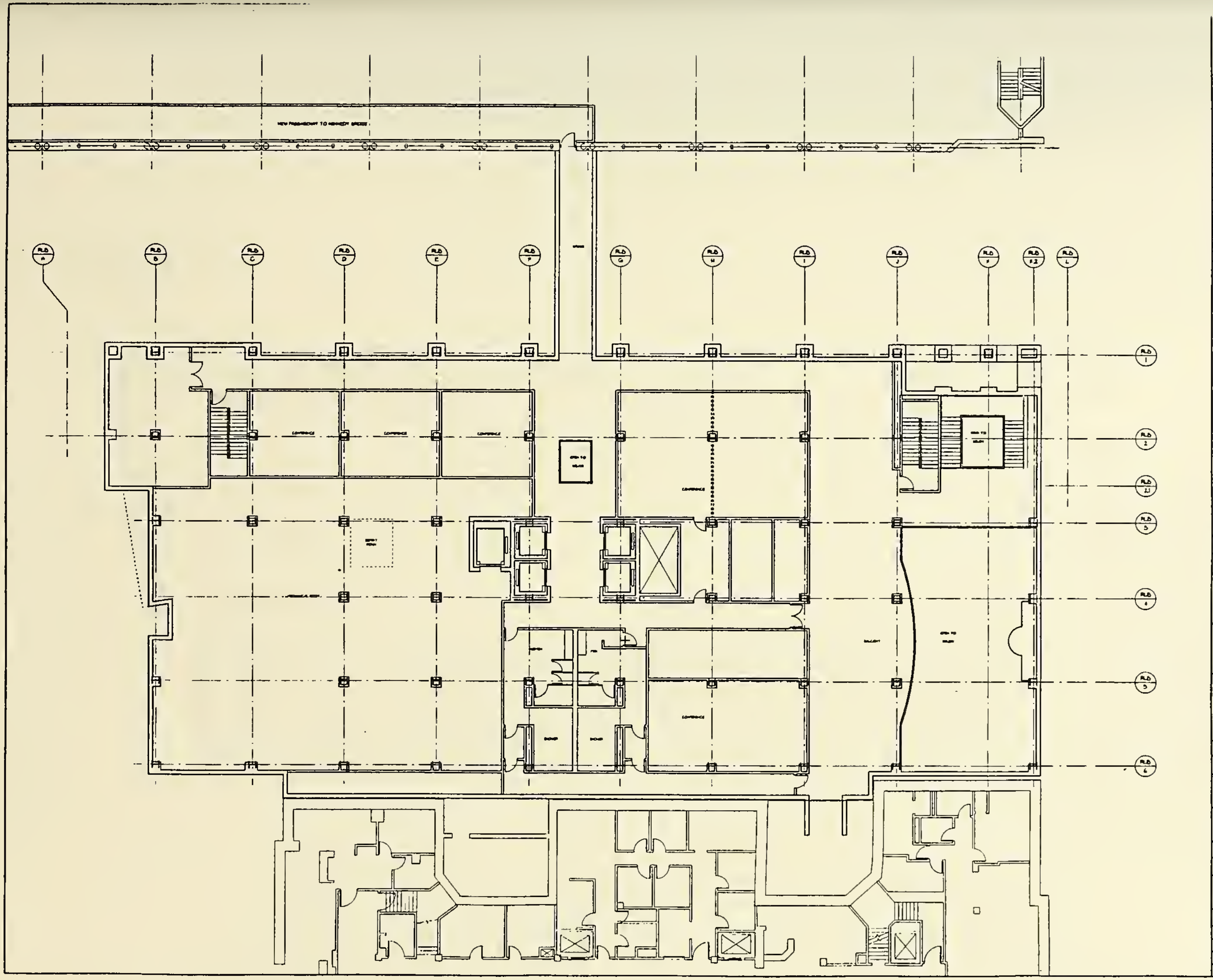
Research Laboratory Building

First Floor Plan

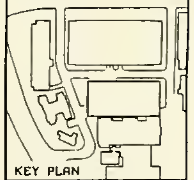
OCTOBER 1, [illegible]

A1-1.3

GENERAL NOTES



REVISIONS



KEY PLAN

Deaconess
Hospital

Research Laboratory
Building

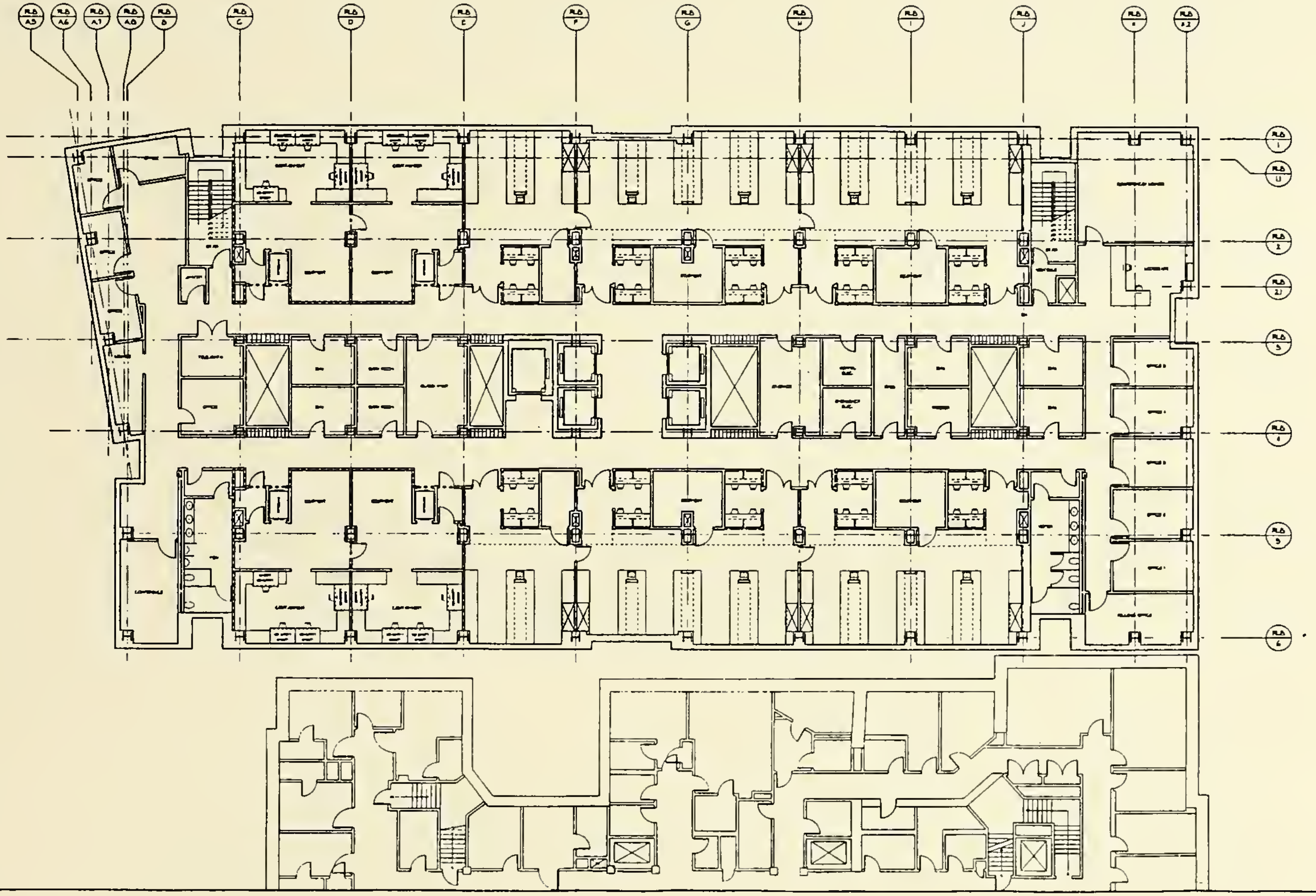
Second Floor Plan

OCTOBER 1, 1990

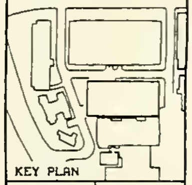
1/8" = 1'-0"

A1-1.4

GENERAL NOTES



REVISIONS


KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

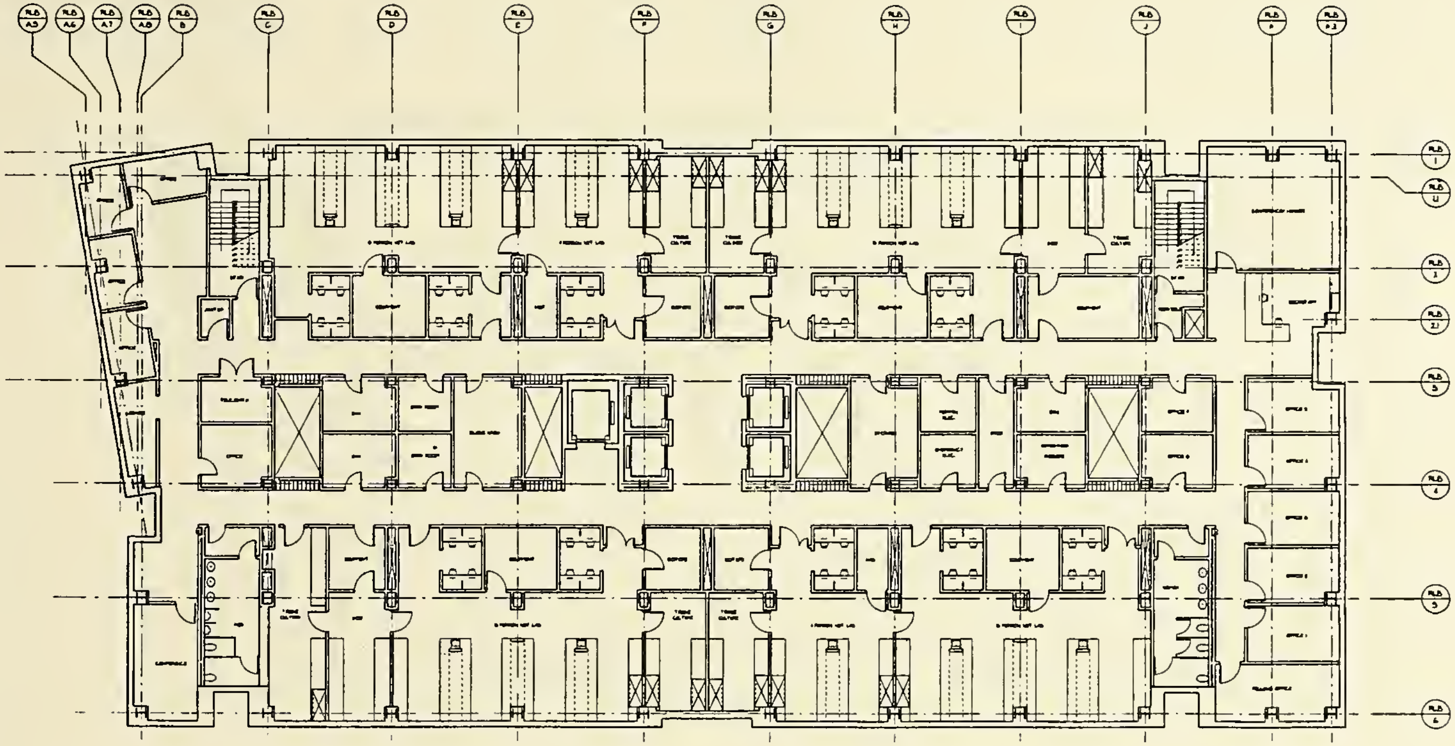
Deaconess Hospital

Research Laboratory Building

Generic Floor Plan
Type 1 Laboratory

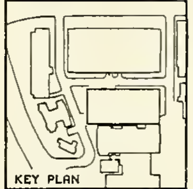
OCTOBER 1,

A1-1.5



GENERAL NOTES

REVISIONS



KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

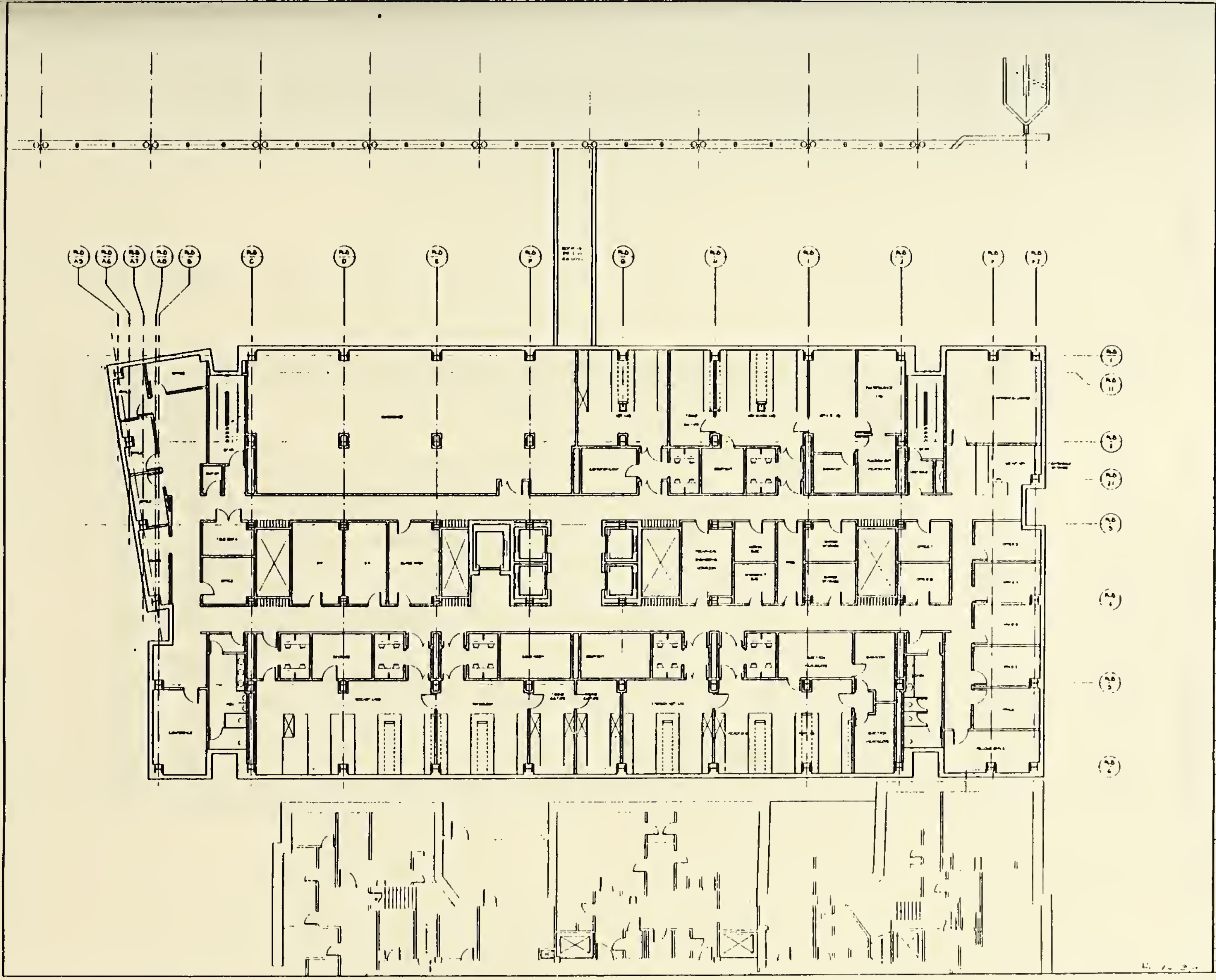
Research Laboratory Building

Generic Floor Plan
Type 2 Laboratory

OCTOBER 1, 19[illegible]

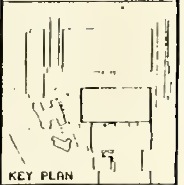
1/8" = 1'-0"

A1-1.6



GENERAL NOTES

REVISIONS



KEY PLAN

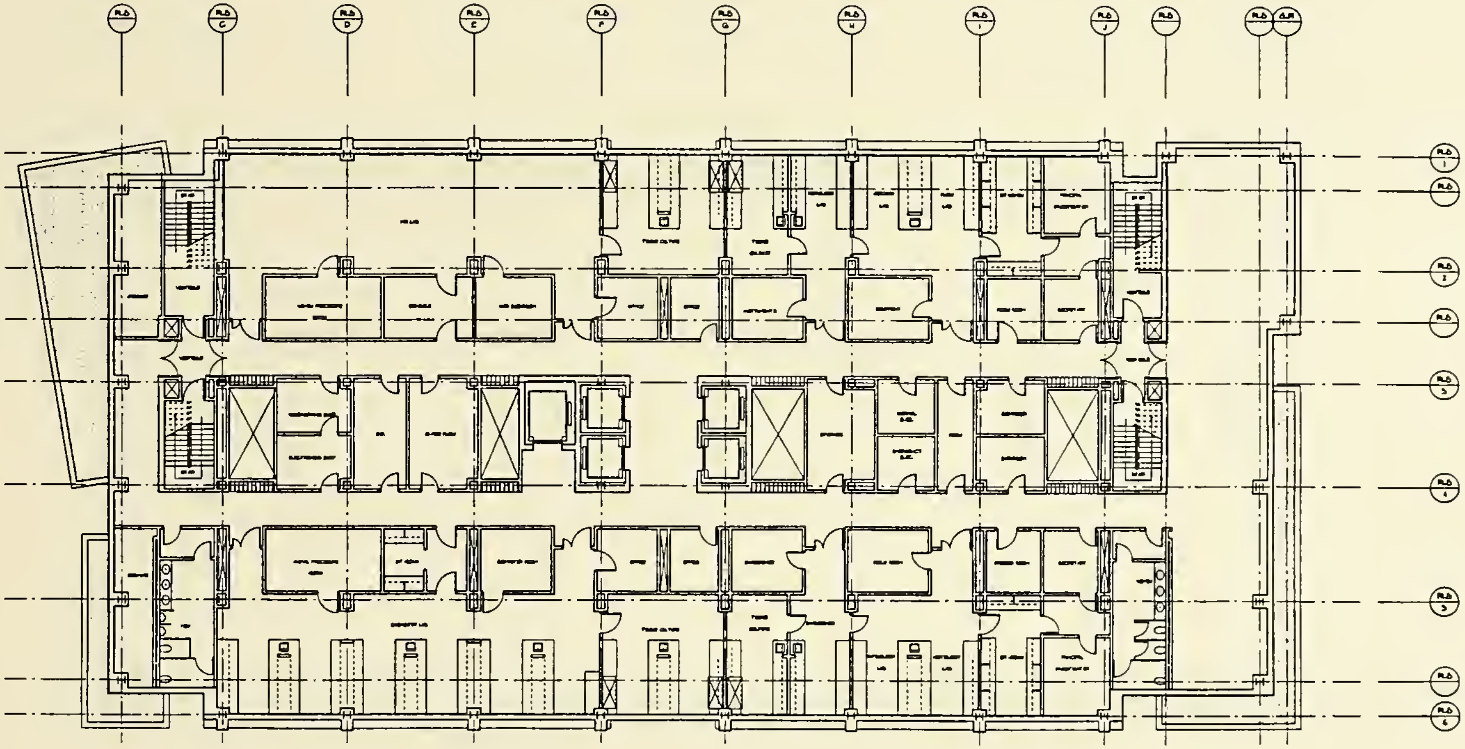
Deaconess Hospital

Research Laboratory Building

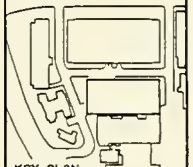
Non Generic 1 Floor Plan

A1-17

GENERAL NOTES



REVISIONS



KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

Research Laboratory
Building

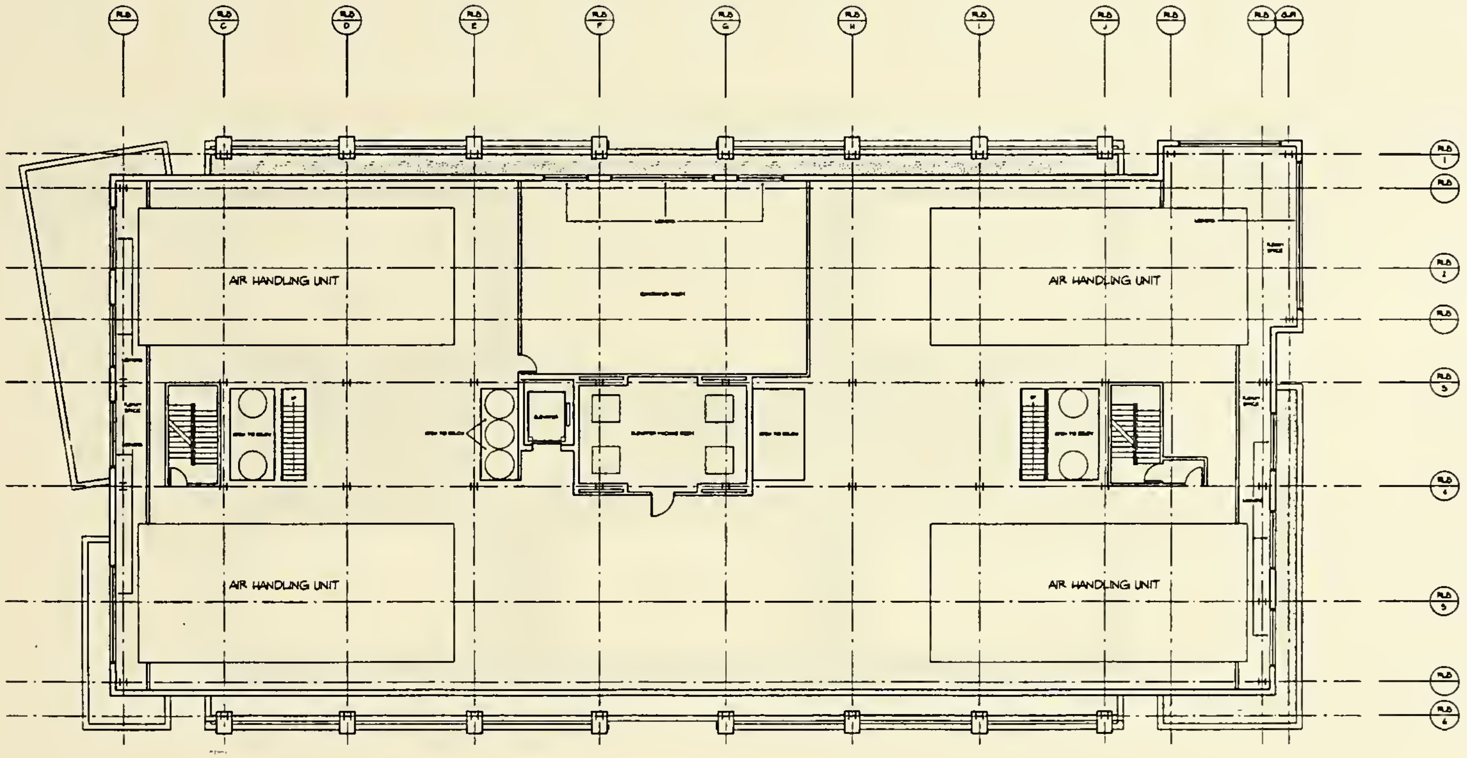
Non-Generic 2
Floor Plan

OCTOBER 1 [illegible]

1/8" = 1'-0"

A1-1.8

GENERAL NOTES



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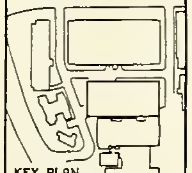


KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess
Hospital

Research Laboratory
Building

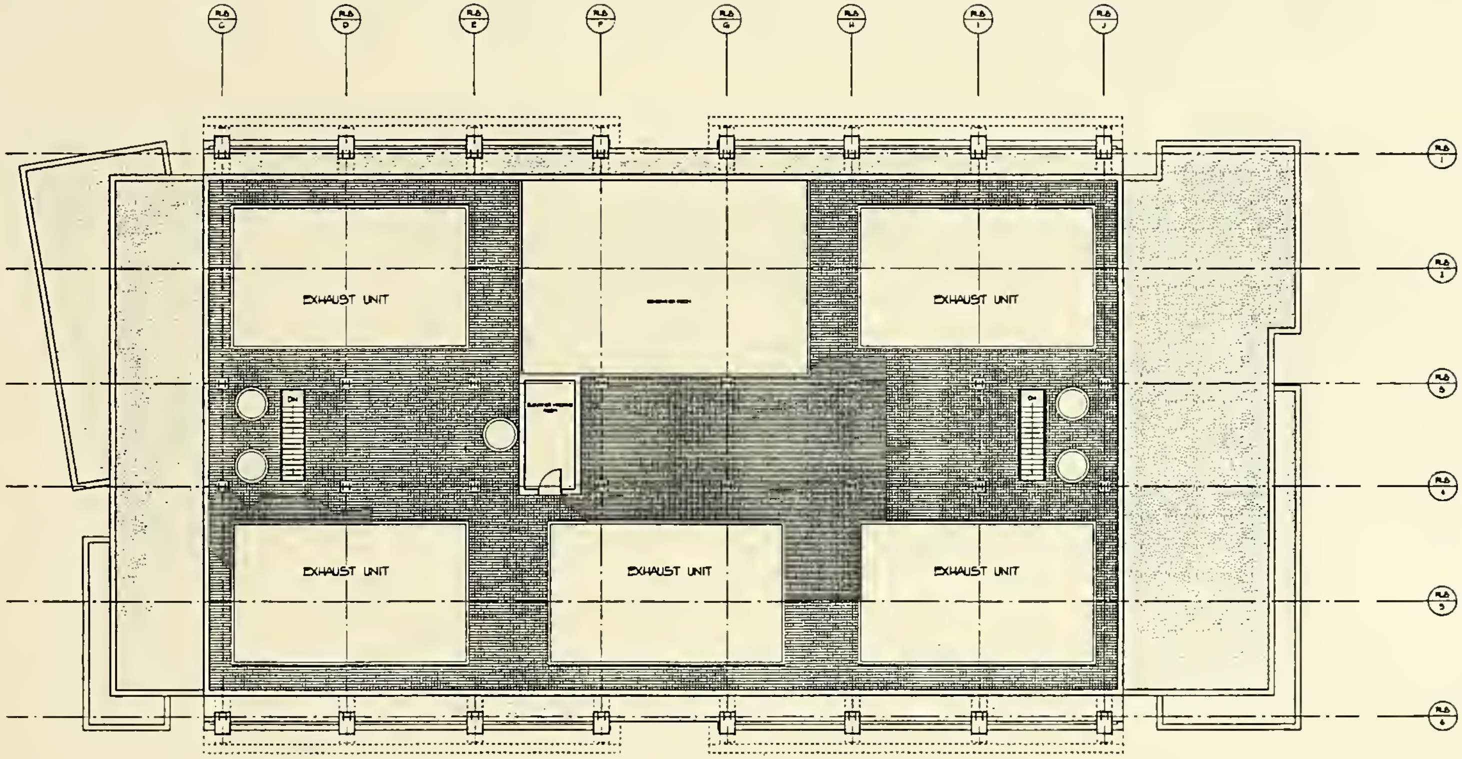
Penthouse Plan

OCTOBER 1, 19

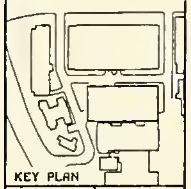
1/8" = 1'-0"

A1-1.9

GENERAL NOTES



REVISIONS



KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

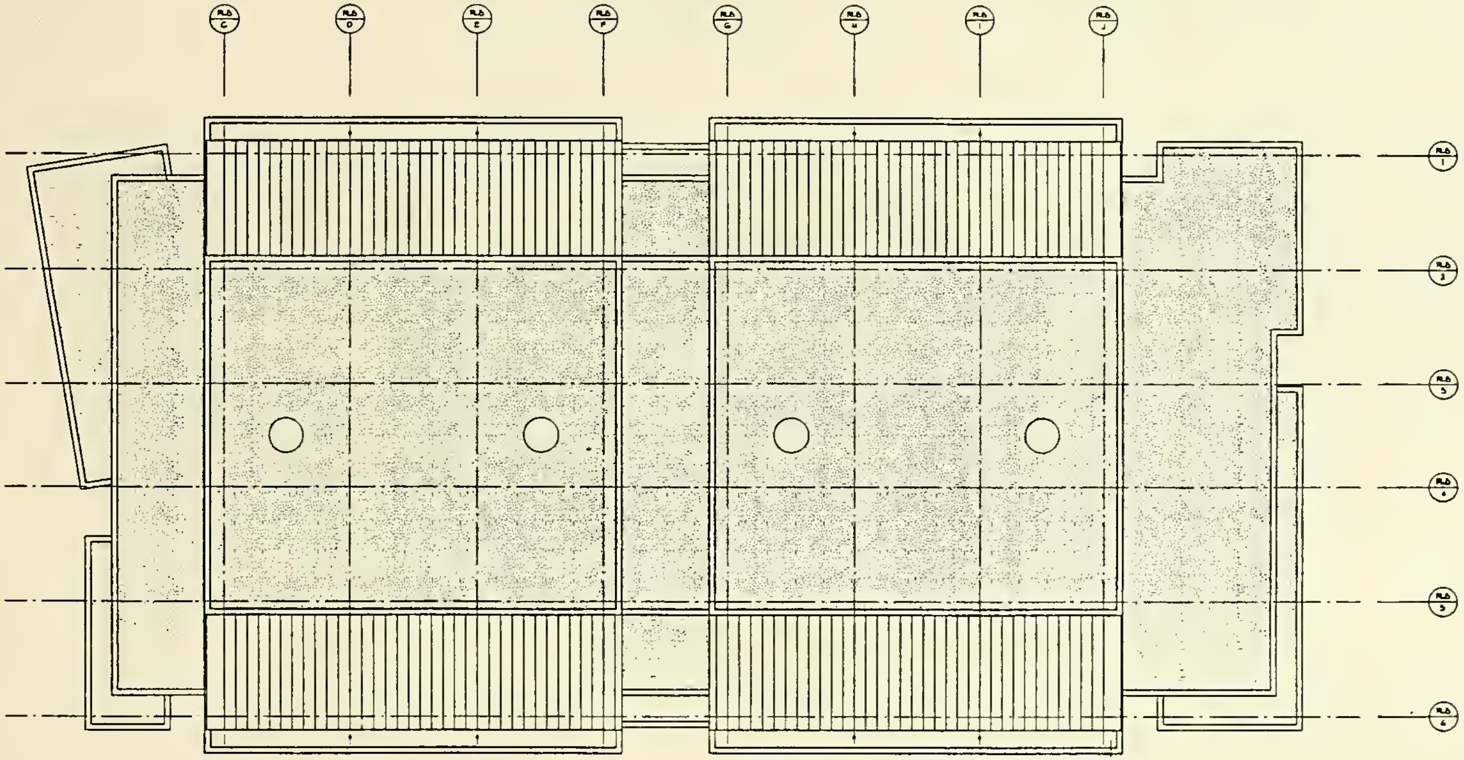
Research Laboratory Building

Penthouse Mezzanine Plan

OCTOBER 1, 1990

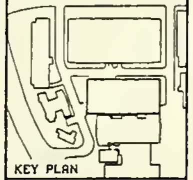
1/8" = 1'-0"

A1-1.10



GENERAL NOTES

REVISIONS



KEY PLAN

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

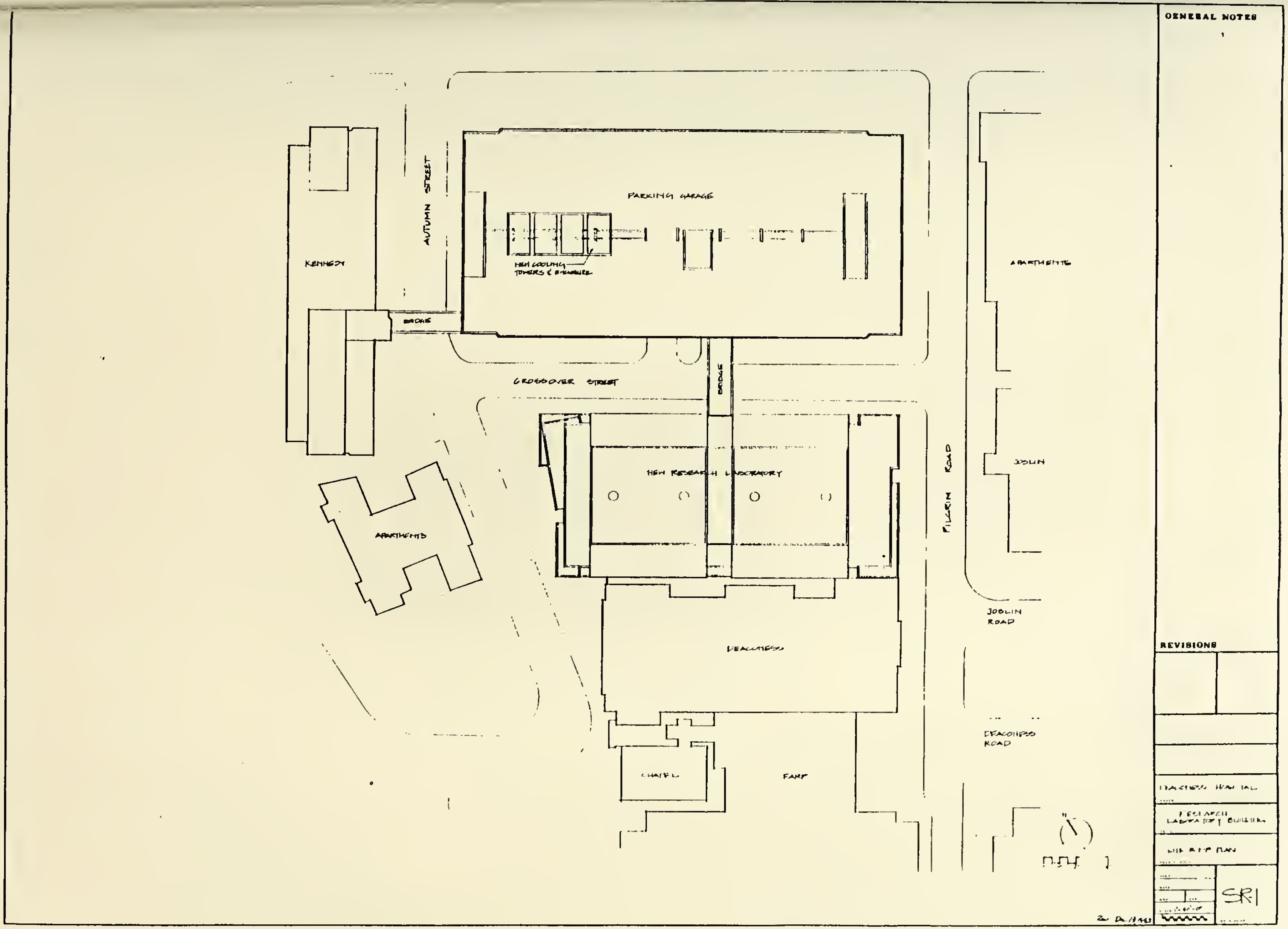
Research Laboratory Building

Roof Plan

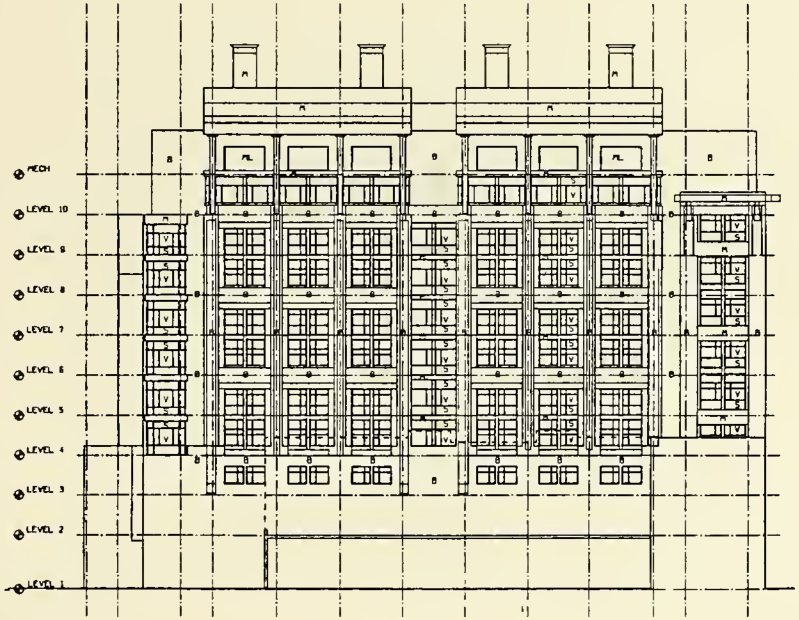
OCTOBER 1, 19[illegible]

1/8" = 1'-0"

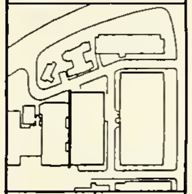
A1-1.11


GENERAL NOTES
KENNEDY
AUTUMN STREET
BRIDGE
PARKING GARAGE
NEW COOLING TOWERS & ENCLOSURE
CROSSOVER STREET
BRIDGE
APARTMENTS
NEW RESEARCH LABORATORY
DEACONESS
CHAPEL
FARR
PILGRIM ROAD
APARTMENTS
JOSLIN
JOSLIN ROAD
DEACONESS ROAD
REVISIONS
DEACONESS HOSPITAL
RESEARCH LABORATORY BUILDING
SITE PLAN
SR1

MATERIAL LEGEND
B - Brick
M - Metal
ML- Metal Louver
V - Vision Glass
S - Spandrel Glass



REVISIONS



SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

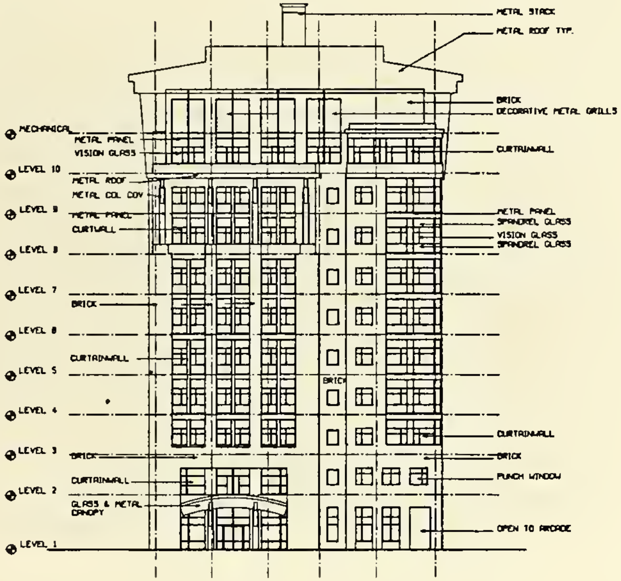
Research Laboratory Building

West Elevation

OCTOBER 1, [illegible]

1/8" = 1'-0"

A3-1.1



MATERIAL LEGEND
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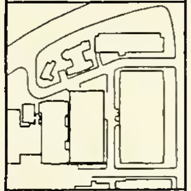
M - Metal
ML - Metal Louver
V - Vision Glass
S - Spandrel Glass

REVISIONS



SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

Research Laboratory Building

South Elevation

OCTOBER 1, 19[illegible]

1/8" = 1'-0"

A3-1.2

MATERIAL LEGEND
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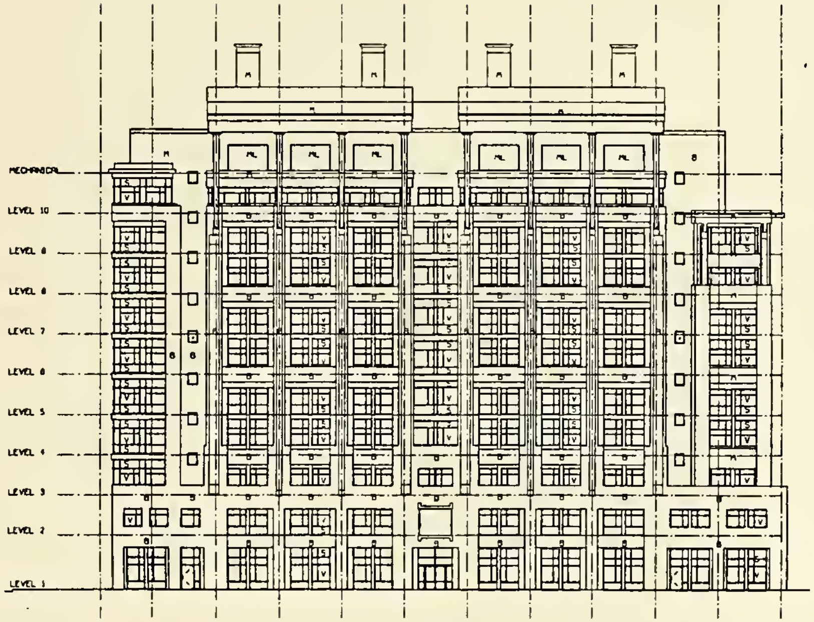
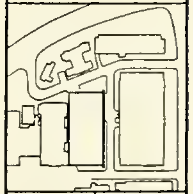
M - Metal
ML - Metal Louver
V - Vision Glass
S - Spandrel Glass



REVISIONS



SHEPLEY BULFINCH RICHARDSON AND ABBOTT

Deaconess Hospital

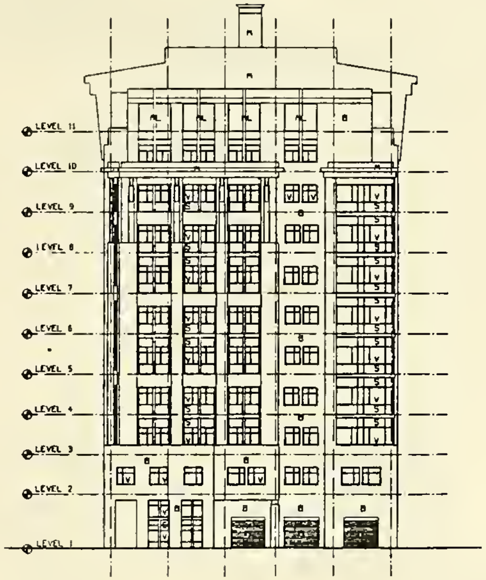
Research Laboratory Building

East Elevation

OCTOBER 1, [illegible]

1/8" = 1'-0"

A3-1.3

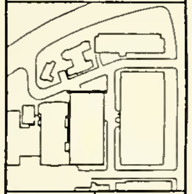


GENERAL NOTES

MATERIAL LEGEND

B - Brick
M - Metal
ML - Metal Louver
V - Vision Glass
S - Spandrel Glass

REVISIONS



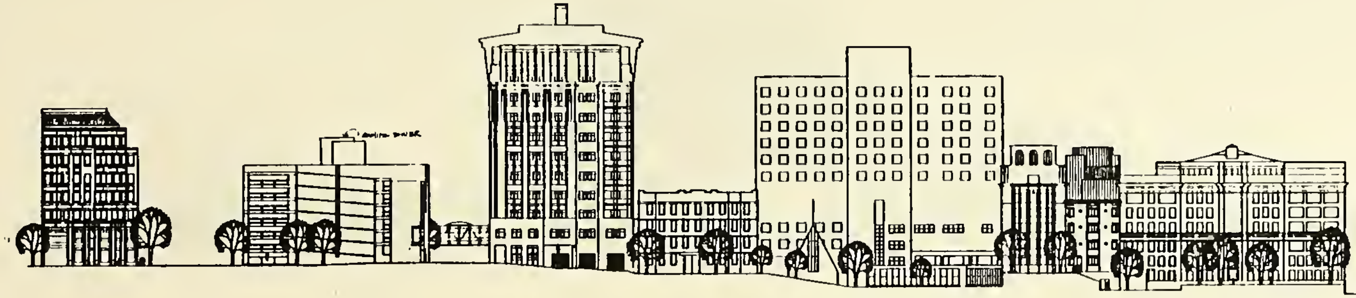
Deaconess Hospital

Research Laboratory Building

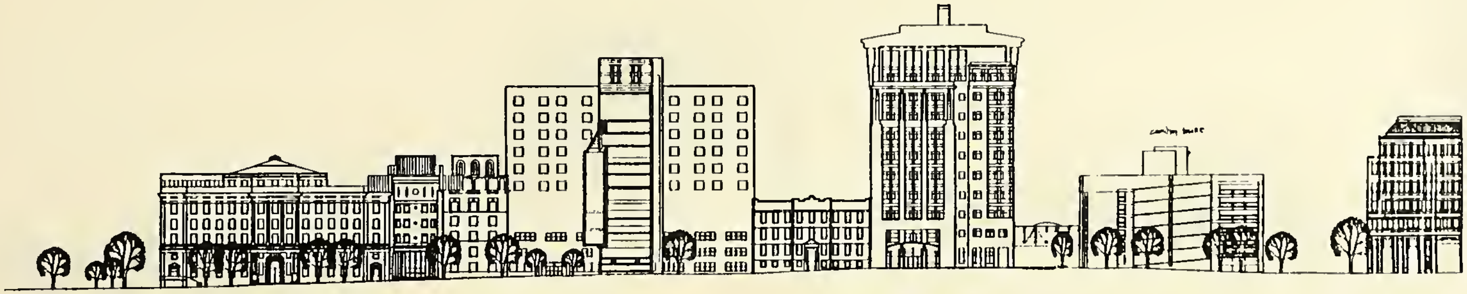
North Elevation

A3-1.4

GENERAL NOTES



NORTH ELEVATION



SOUTH ELEVATION

REVISIONS

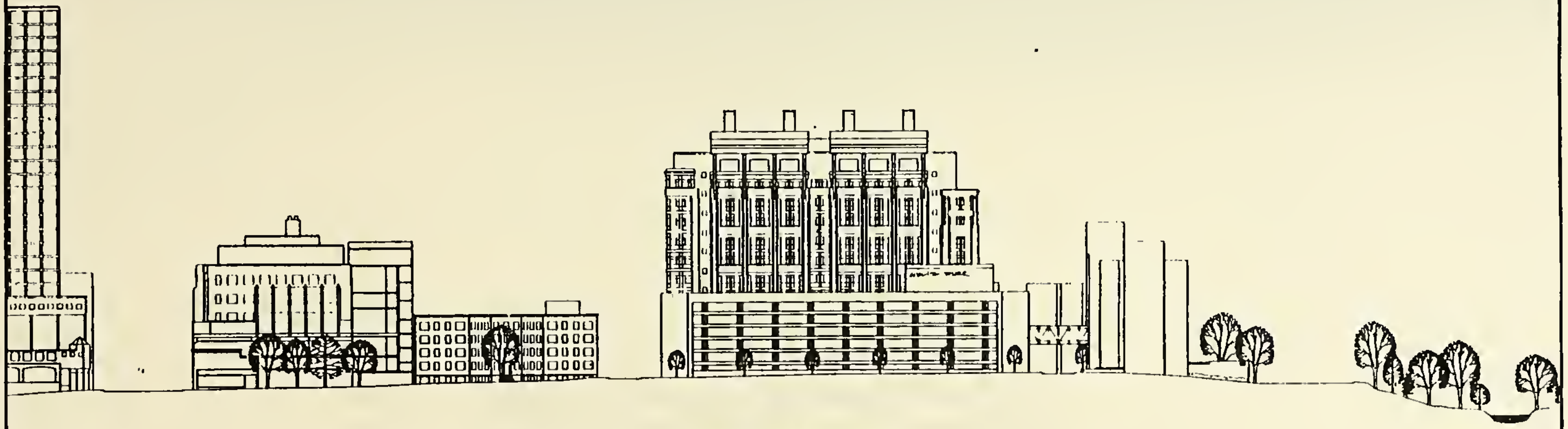
Deaconess Hospital

Research Laboratory Building

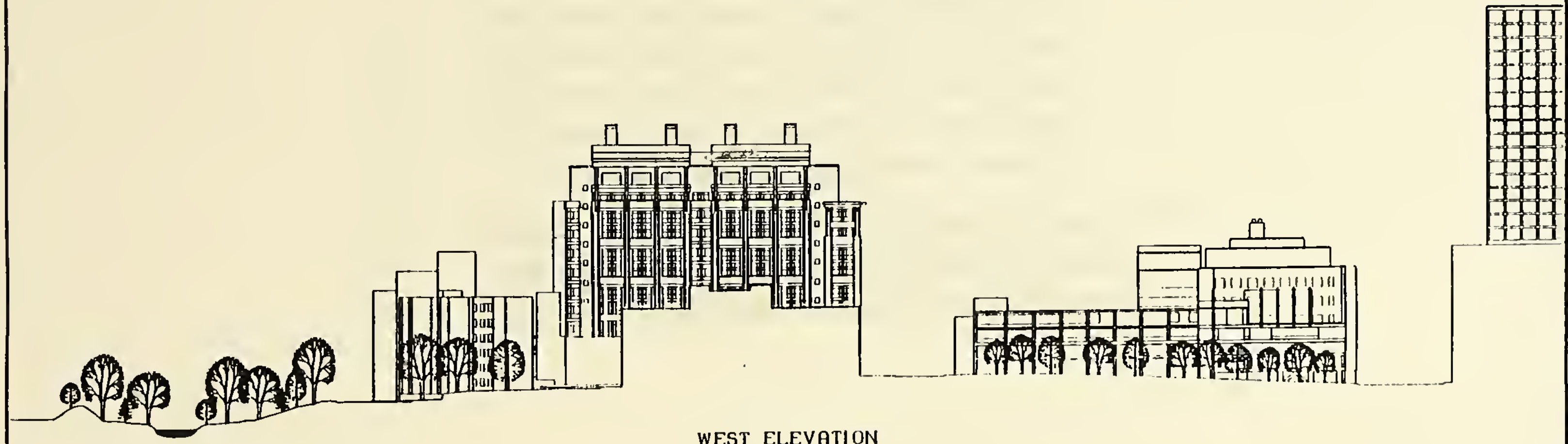
North/South Exterior Elevations

A3-15

GENERAL NOTES



EAST ELEVATION



WEST ELEVATION

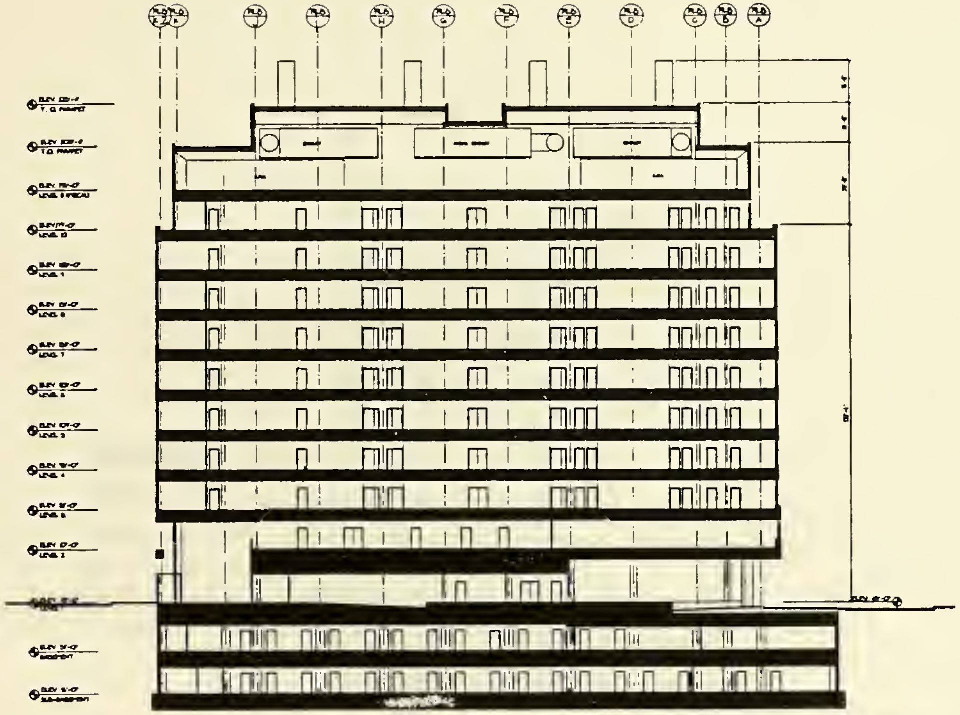
REVISIONS

Deaconess Hospital

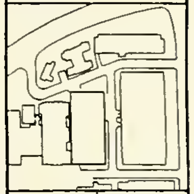
Research Laboratory Building

East/West Exterior Elevations

A3-16



REVISIONS



Deaconess Hospital

Research Laboratory Building

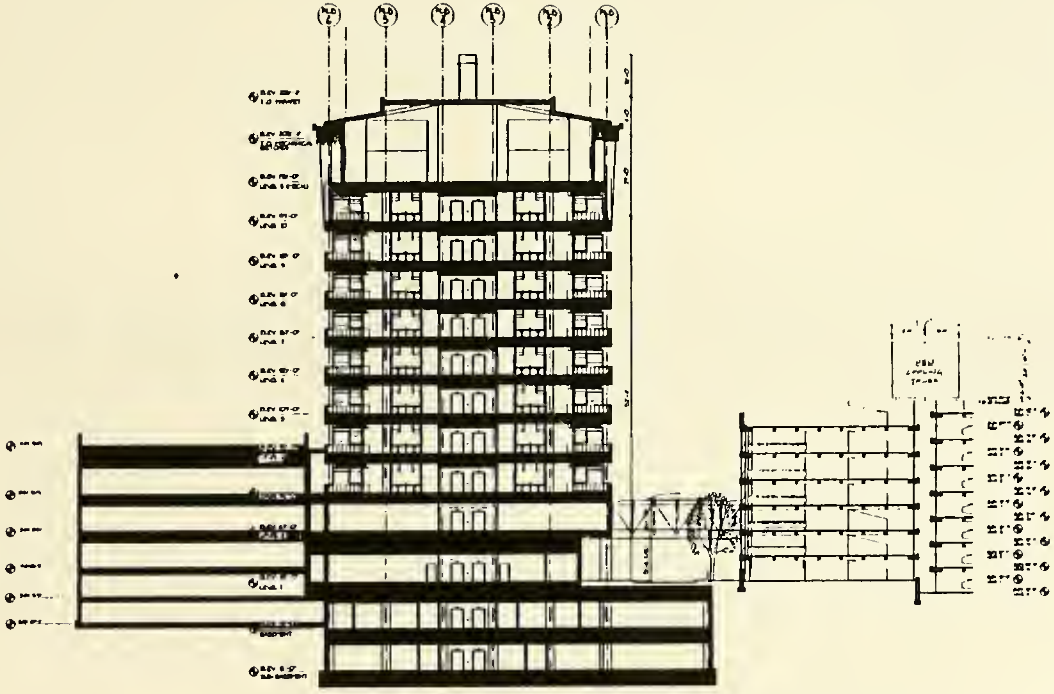
North/South Section West View

OCTOBER

1/16" = 1'-0"

A4-1.1

GENERAL NOTES



REVISIONS

Deaconess Hospital

Research Laboratory Building

East/West Section North View

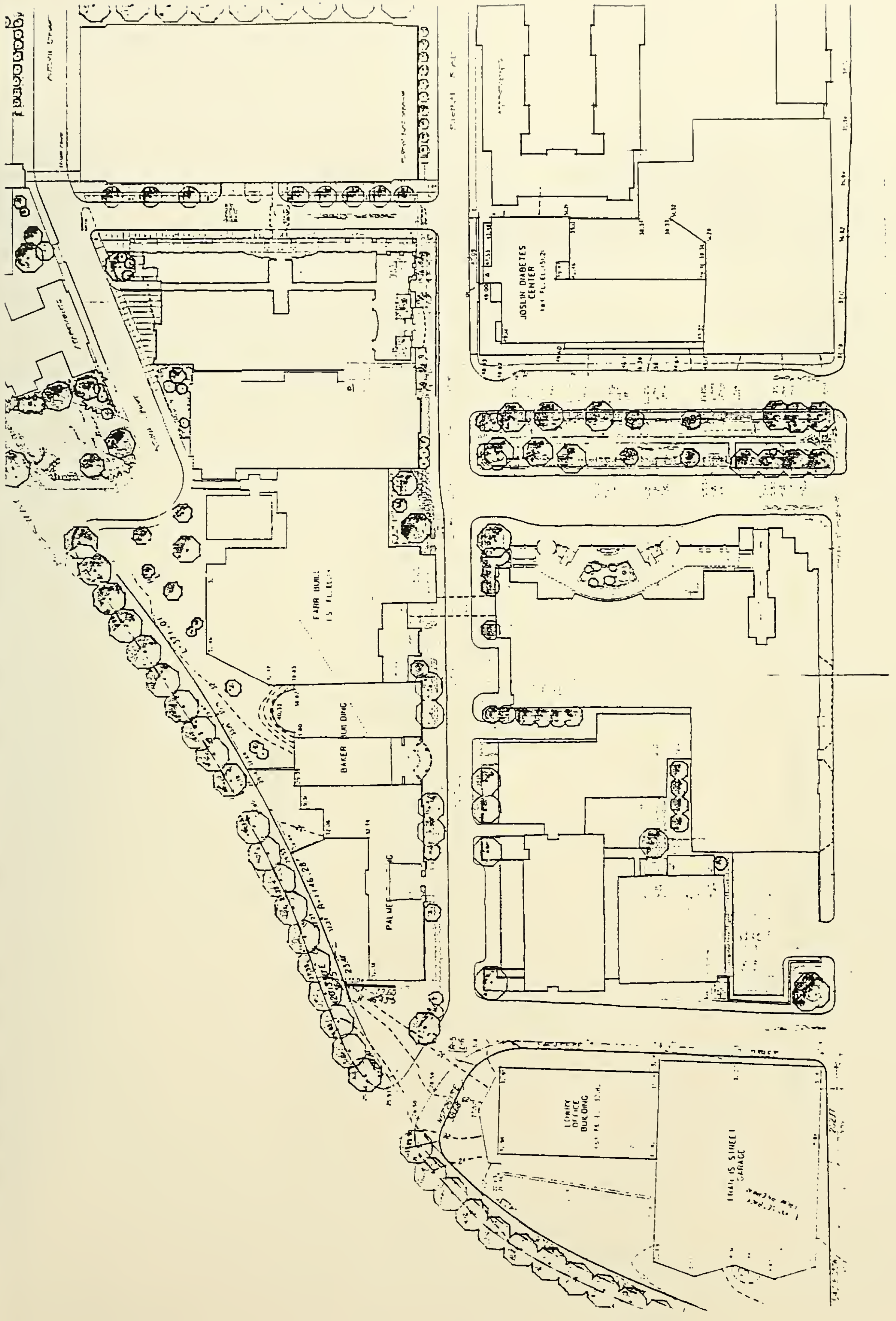
OCTOBER [illegible]

1/16" = 1'-0"

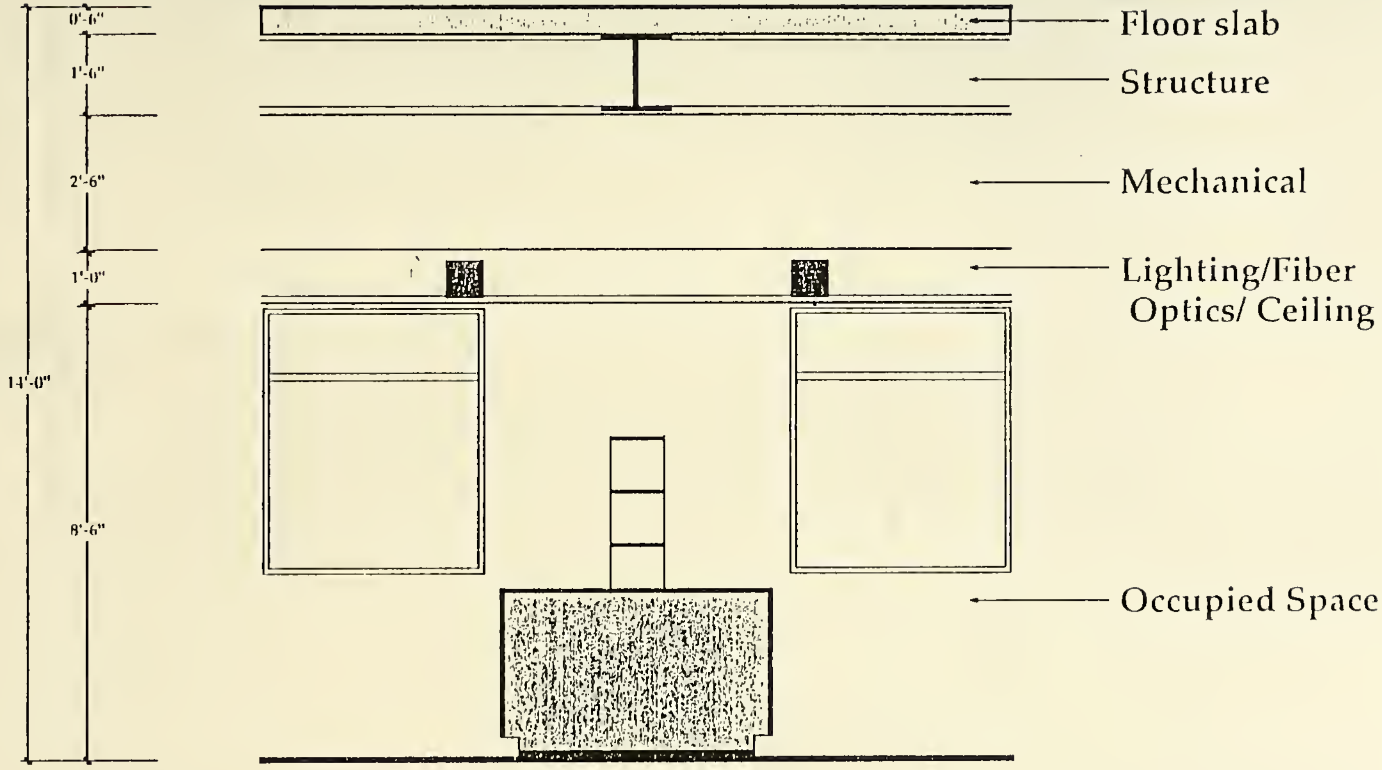
A4-12

Rev Dec 1993

PARK & PLANTING STUDIES


JOSLIN DIABETES CENTER
FARR BUILDING
15 FL.
BAKER BUILDING
PALMER BUILDING
R=1146.28'
LOWRY OFFICE BUILDING
FRANCIS STREET GARAGE

MECHANICAL DIAGRAMS



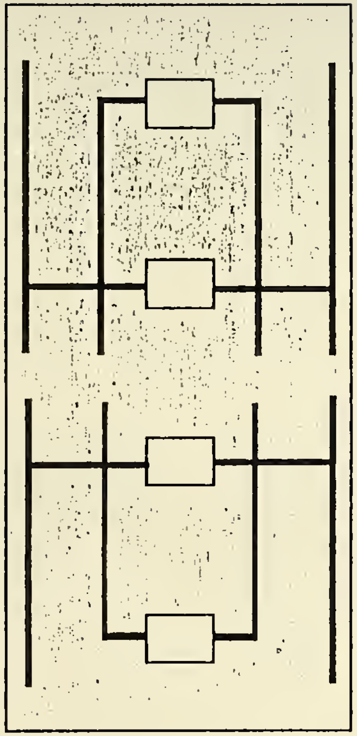
TYPICAL FLOOR SECTION

1" = 1'-0"

DEACONESS
HOSPITAL

NEDH LABORATORY BUILDING

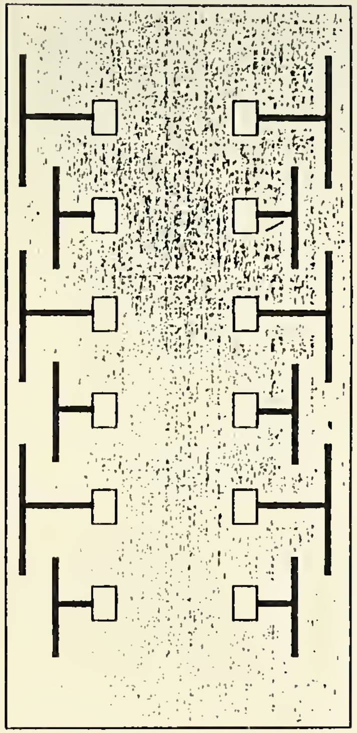
BCDC PRESENTATION -
SBRA
JULY 6, 1



A

Floor to Floor above 14'-0"

1 ECONOMICAL
2 MORE FLEXIBILITY IN ADDING FUME HOODS
3 HIGHER FLOOR TO FLOOR



B

Floor to Floor below 14'-0"

1 SHORTER HORIZONTAL RUNS.
2 LOWER FLOOR TO FLOOR HEIGHTS.
3 MULTIPLE SHAFTS CONSTITUTE MANY OBSTRUCTIONS REDUCED FLEXIBILITY.
4 LESS EFFICIENT NET TO GROSS BECAUSE OF MORE SHAFTS.
5 MORE EXPENSIVE BECAUSE MORE VERTICLE DUCT RISERS REQUIRED

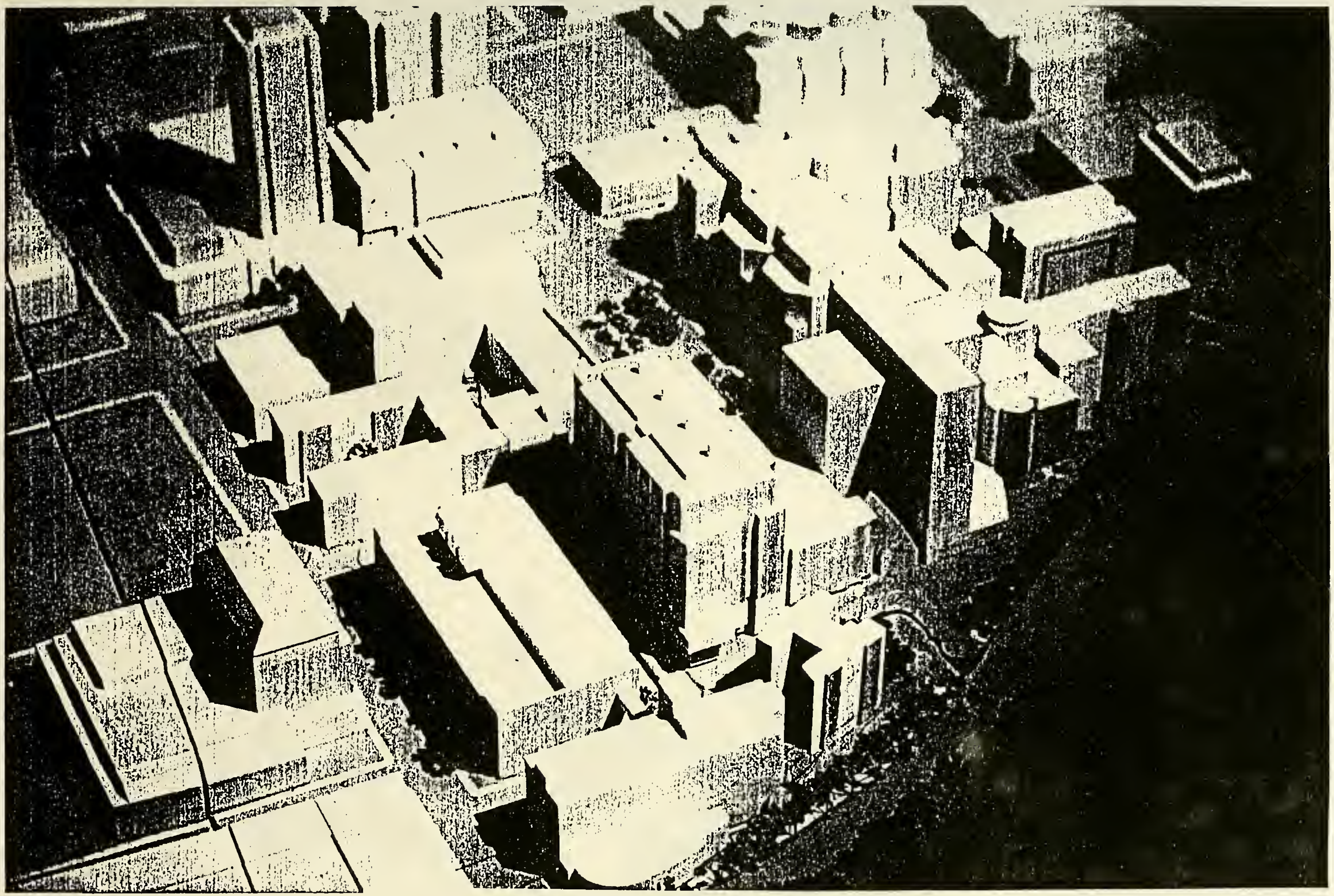
MECHANICAL SYSTEM DIAGRAM

DEACONESS
HOSPITAL

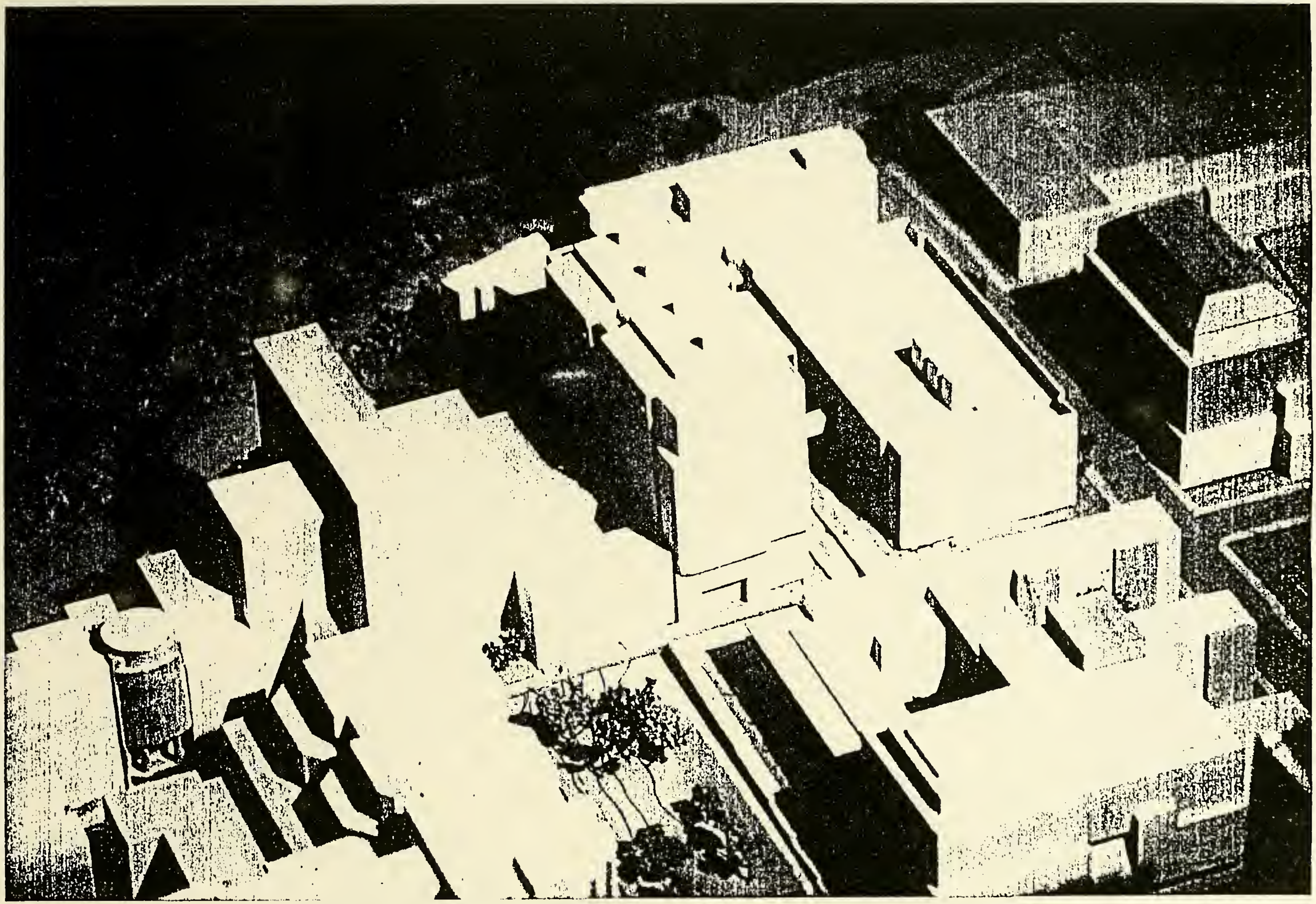
NEDH LABORATORY BUILDING

HCDC PRESENTATION - 2
SBRA
JULY 6, 199

MODEL VIEWS

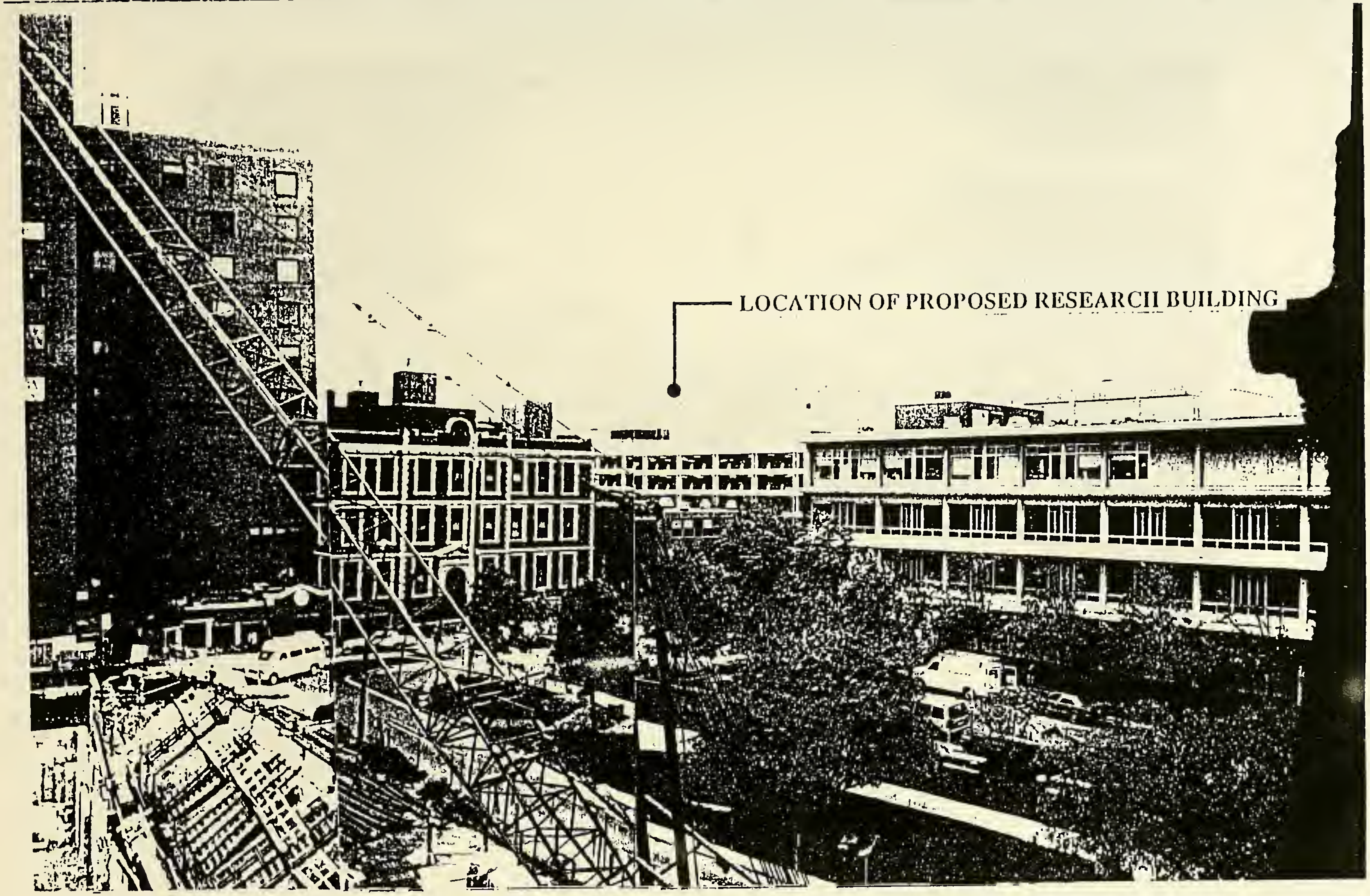


Model View of Proposed Research Facility
Looking South



Model View of Proposed Research Facility
Looking North

EXISTING PHOTOS

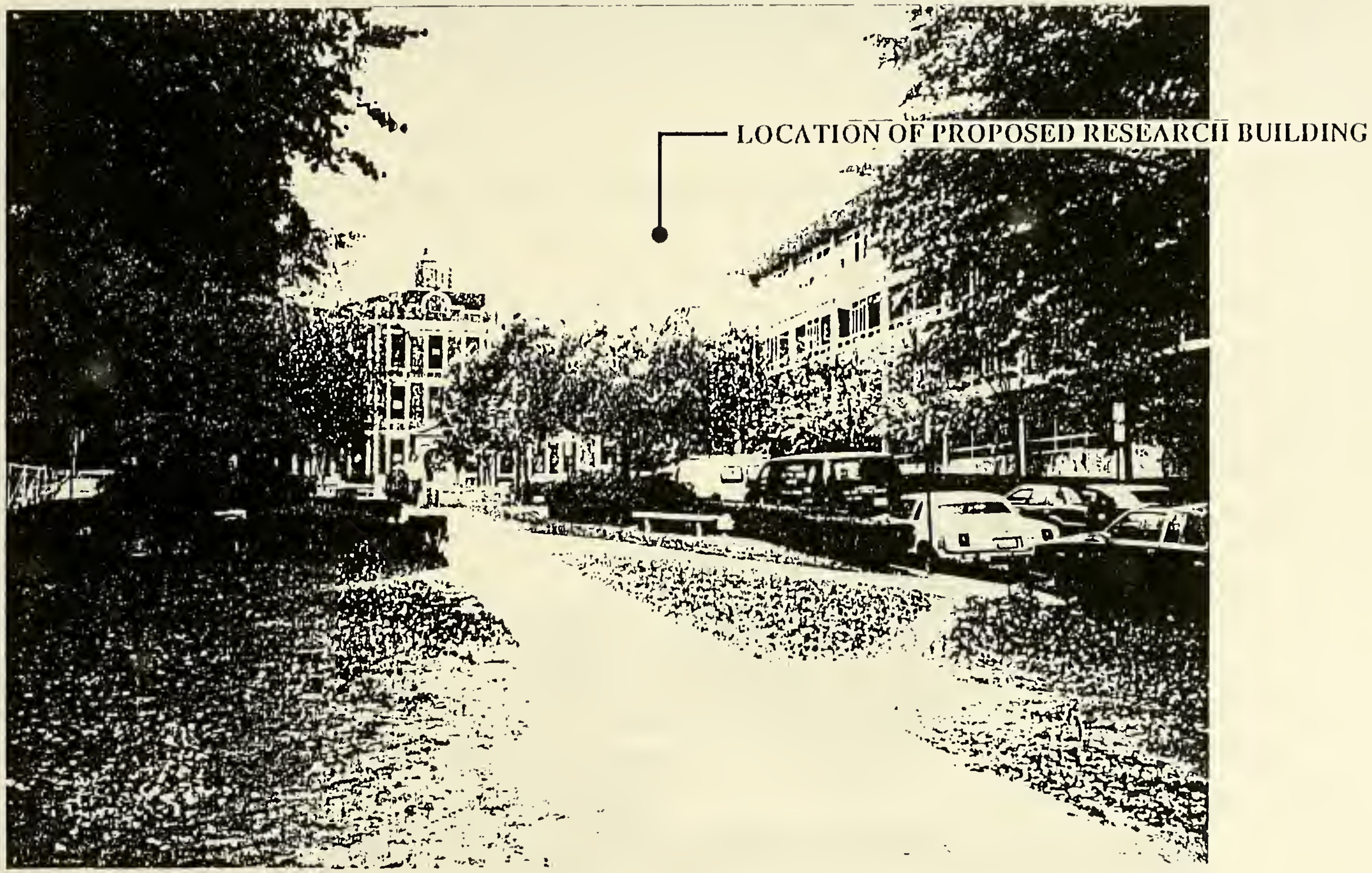


Existing View - Elevated view looking Northwest From New Clinical Building Elevator Tower

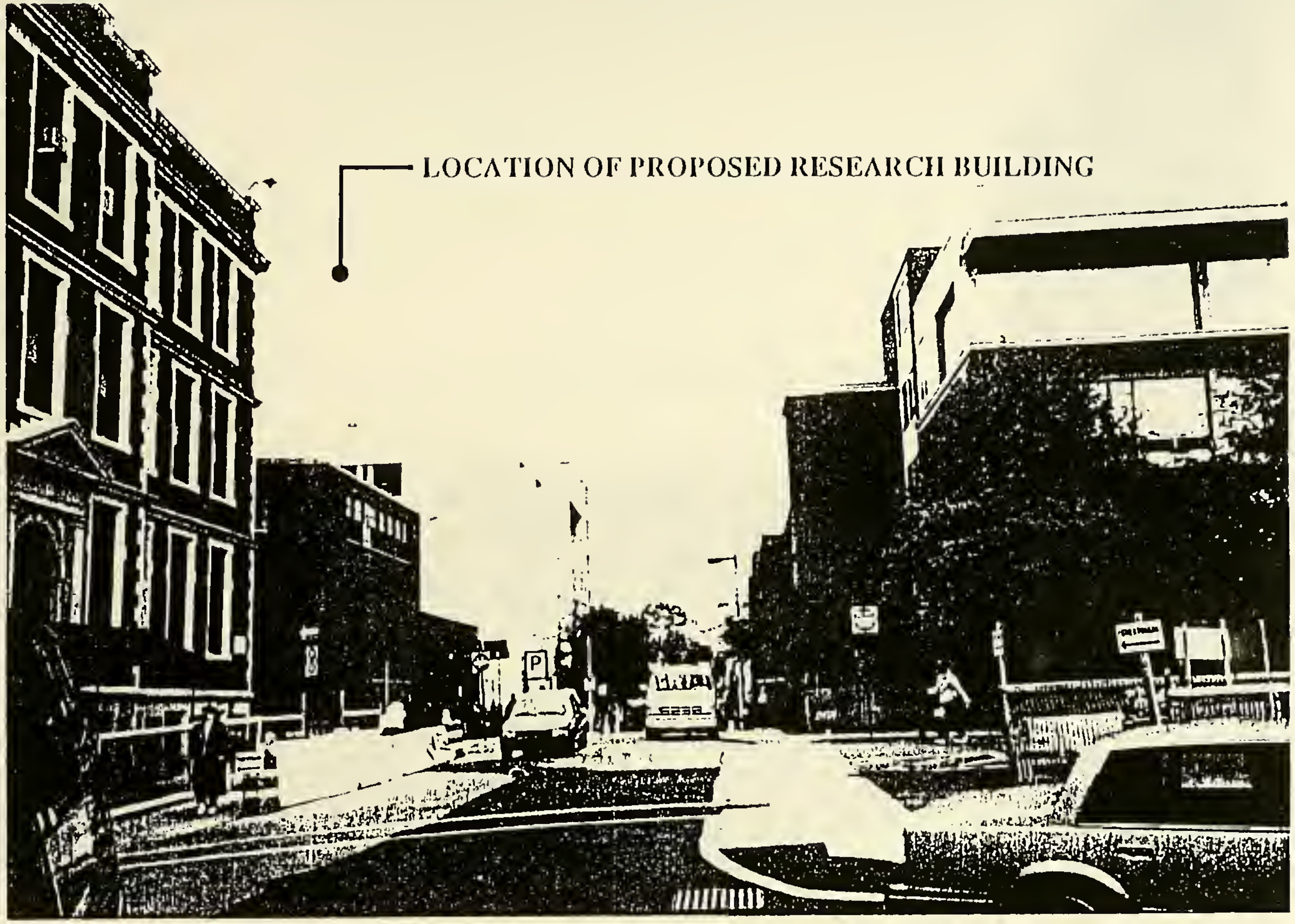
DEACONESS
HOSPITAL

NEDH LABORATORY BUILDING

BRA PRESENTATION - 1
SBRA ARCHITECTS JUNE 1, 1993



Existing View - Joslin Park Looking West

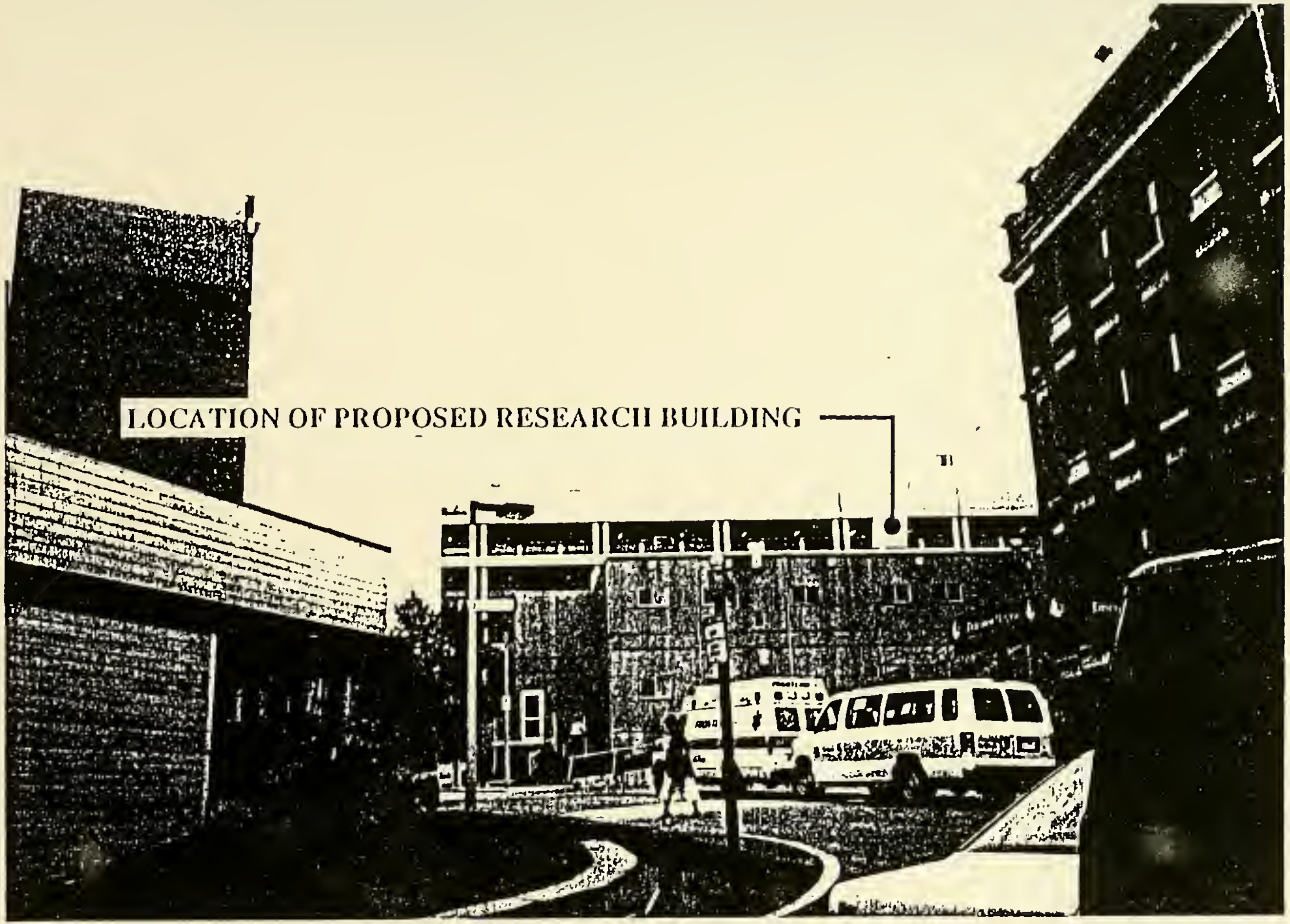


Existing View - Pilgrim Road Looking North

DEACONESS
HOSPITAL

NEDH LABORATORY BUILDING

BRA PRESENTATION - 1
SBRA ARCHITECTS JUNE 1, 1993



LOCATION OF PROPOSED RESEARCH BUILDING

Existing View - Autumn Road From Riverway

DEACONESS
HOSPITAL

NEDH LABORATORY BUILDING

BRA PRESENTATION - 1
SBRA ARCHITECTS JUNE 1, 1993

APPENDIX D

BRA Board Memorandum on the Research Facility Project, December 22, 1993

Taken Under Advisement on December 22, 1993

MEMORANDUM RESUBMITTED JANUARY 13, 1994

TO: BOSTON REDEVELOPMENT AUTHORITY AND
PAUL L. BARRETT, DIRECTOR

FROM: BEVERLEY JOHNSON, ASSISTANT DIRECTOR FOR
INSTITUTIONAL PLANNING AND DEVELOPMENT
LINDA MONGELLI HAAR, ASSISTANT DIRECTOR FOR
NEIGHBORHOOD PLANNING AND ZONING
LARRY KOFF, PROJECT COORDINATOR FOR
INSTITUTIONAL PLANNING AND DEVELOPMENT

SUBJECT: PUBLIC HEARING CONCERNING A DEVELOPMENT IMPACT PROJECT PLAN AND AN INSTITUTIONAL MASTER PLAN FOR NEW ENGLAND DEACONESS HOSPITAL AND RELATED ZONING TEXT AND MAP AMENDMENTS

SUMMARY: This project was taken under advisement by the Board at the December 22, 1993 meeting. This Memorandum requests that the Authority: 1) Authorize the Director to petition the Zoning Commission to adopt the zoning text and map amendments establishing the New England Deaconess Hospital Institutional District; 2) Approve the New England Deaconess Hospital Institutional Master Plan; 3) Authorize the Director to enter into a Cooperation Agreement with New England Deaconess Hospital in connection with its Institutional Master Plan and Proposed Project; 4) Approve the Development Impact Project Plan ("DIP Plan") submitted by New England Deaconess Hospital in connection with the construction of a research facility project at 169-171 Pilgrim Road ("the Proposed Project"); 5) Authorize the Director to enter into a Development Impact Project Agreement ("DIP Agreement") with New England Deaconess Hospital in connection with the Proposed Project; and 6) Authorize the Director to issue an Adequacy Determination for the Proposed Project upon completion of the Authority's Article 31 development review process.

INTRODUCTION

On December 22, 1993, the Boston Redevelopment Authority held a public hearing concerning the Development Impact Project Plan and an Institutional Master Plan for

the New England Deaconess Hospital and related zoning text and map amendments. At the conclusion of the hearing, the Authority voted to take the project under advisement so that issues raised could be addressed.

New England Deaconess Hospital (the "NEDH" or "Hospital") is a sophisticated tertiary care institution known for academic excellence and research of the highest standards. The Hospital's campus is located between Brookline Avenue, Longwood Avenue, and the Riverway within the Longwood Medical Area (LMA) on approximately 378,000 square feet of land. The surrounding LMA is characterized by medical institutions and health care-related uses. The NEDH has identified an urgent need for modern research space in proximity to its on-campus clinical programs in order to accommodate the NEDH focus on patient care research.

The Hospital requests approval of a Development Impact Project Plan and a Development Impact Project Agreement for the construction of a proposed project at 169-171 Pilgrim Road. The NEDH also requests the approval of the New England Deaconess Hospital Institutional Master Plan. In addition, the Hospital requests approval of zoning text and map amendments as proposed by the BRA that would establish the New England Deaconess Hospital Institutional District.

PROJECT DESCRIPTION

The NEDH proposes to construct a $70 million Research Facility at 169-171 Pilgrim Road. The building will be 175' above-grade, and will contain approximately 236,740 gross square feet (for floor area ratio purposes) devoted to supporting the research needs of the Hospital. The Hospital's existing research space will be consolidated into one building. The Proposed Project will include space for an animal research facility, laboratory space for research, an auditorium and office/support space, and other uses incidental to a hospital research facility (such as loading facilities and storage of hazardous and flammable materials).

URBAN DESIGN

The Proposed Project has been substantially improved through the design review process. The Hospital initially presented a higher building of 190 feet in height containing 12 stories. Following review with Authority urban design staff and the Boston Civic Design Commission (BCDC), the project was reduced to 175 feet and the number of stories reduced to eleven. The BCDC recommended approval of the schematic design on August 3, 1993. The current site plan and elevations are shown in the attached exhibits. This scheme (dated "October 1, 1993," as revised) has received schematic design approval of the Authority's staff.

INSTITUTIONAL ZONING

Zoning text and map amendments are proposed in order to create new zoning controls for the area that includes the campus of the New England Deaconess Hospital. The goal of the proposed zoning is to permit institutional growth in a manner compatible with the surrounding area, as reflected in an Institutional Master Plan. The proposed zoning, which would establish the New England Deaconess Hospital Institutional District in place of the existing H-2 district zoning, follows closely the institutional master planning provisions recently adopted by the Authority and the Zoning Commission for the Beth Israel Hospital Institutional District, the Massachusetts College of Pharmacy Institutional District, and the comprehensive zoning plan being prepared for the entire Longwood Medical Area.

New institutional development would be subject to the Institutional Master Plan requirement of the proposed zoning. This would require an institution to prepare an Institutional Master Plan describing its future development program. The Institutional Master Plan must be approved by the Authority and the Zoning Commission, after public hearings, prior to the construction of any project that must be described in an Institutional Master Plan.

In addition to establishing the Institutional Master Plan requirement, the proposed zoning establishes underlying use and dimensional controls to govern projects that are not subject to Institutional Master Plan approval. Projects that do require Institutional Master Plan approval are governed by the use, dimensional, and parking and loading requirements that are approved in the Institutional Master Plan.

The proposed Institutional District is the third Institutional District zoning article to be proposed during the planning process for the Longwood Medical Area. Like its two predecessors (the Beth Israel Hospital Institutional District and Massachusetts College of Pharmacy Institutional District), the proposed Institutional District is designed to meet the need for new zoning controls to govern institutional growth until comprehensive zoning regulations for the entire Longwood Medical Area have been developed. Upon completion of the area-wide planning and public review processes, the zoning regulations for the entire Longwood Medical Area will replace those previously developed for the individual Institutional Districts.

Among the provisions that will be included in the area-wide zoning regulations will be setbacks and height restrictions to establish appropriate street walls and, most importantly, to protect open space and residential areas within and adjacent to the LMA. One area to be protected by such regulations will be the Riverway parkway and park area. A portion of this area borders the proposed New England Deaconess Hospital Institutional District. Because area-wide regulations are at a planning stage, setback and street wall regulations are not included in the proposed zoning. However, setback and height restrictions established by City ordinance continue to provide basic protection for the Riverway area during this planning period.

SBMEM/49
010694/3

INSTITUTIONAL MASTER PLAN

The Hospital's Institutional Master Plan, entitled "New England Deaconess Institutional Master Plan, 1993-2003" (the "Master Plan"), has been prepared to describe anticipated development over the next ten-year period to the year 2003. The projects described in the Master Plan include a project (the "Proposed Project") to construct a new Research Facility of approximately 236,740 gross square feet (for floor area ratio purposes) on the site of the existing Maintenance Building along Pilgrim Road and two temporary structures along Autumn Street. The Maintenance Building and the two temporary structures will be demolished to allow for construction of the Proposed Project. The Proposed Project will provide facilities that will support the research needs of the Hospital, and will consolidate the Hospital's existing research space into one building.

ARTICLE 31 DEVELOPMENT REVIEW

On March 4, 1993, the NEDH voluntarily submitted to the BRA a Project Notification Form (PNF) for Article 31 development review of the Proposed Project. BRA staff issued a Scoping Determination on May 17, 1993 that addressed issues associated with the Proposed Project. The Hospital responded on November 1, 1993 by submitting a Joint Draft Project Impact and Environmental Impact Report (the "Joint Draft Report") as directed by the BRA and the Executive Office of Environmental Affairs.

COMMUNITY REVIEW

In accordance with the requirements of Article 31, formal presentations were made to the Mission Hill Planning and Zoning Advisory Committee (PZAC) in October and November 1993. The Mission Hill PZAC voted on November 17, 1993 to support the BRA's approval of the Proposed Project. A letter of support from the PZAC is being submitted to the BRA.

PUBLIC BENEFITS

The NEDH is providing a comprehensive public benefits package that includes Housing Linkage of approximately $1,181,200 and Jobs Linkage of $236,240. The Proposed Project also will provide 200 construction jobs and 300 permanent jobs. In addition, the Hospital will work with the local community and city agencies to develop a job creation proposal to serve the residents of the local community that supplements other Longwood Medical Area employment and training initiatives using the job linkage funds for the Proposed Project. The NEDH in cooperation with the Mayor's Office of Jobs and Community Services, will identify existing education and training programs serving the community and maximize resources by coordinating, and in some cases, integrating programs. The Hospital will continue to work with the local community to increase the number of Hospital employees from the local community, and will target

qualified community residents for new employment opportunities, and will target current employees from the local community for skills upgrading opportunities. In addition, a PILOT payment amount and schedule is currently being negotiated with the City of Boston Assessing Department.

TRANSPORTATION ACCESS PLAN AGREEMENT

The Proposed Project has been reviewed by the Boston Transportation Department. A Transportation Access Plan Agreement ("TAP Agreement") is being prepared and includes mitigation measures and provisions for the Proposed Project. A TAP Agreement satisfactory to the Commissioner of BTD will be executed prior to the issuance of a building permit for the construction of the Proposed Project.

CONCLUSION

BRA staff recommends that the Authority: (1) Authorize the Director to petition the Zoning Commission to adopt the zoning text and map amendments establishing the New England Deaconess Hospital Institutional District; (2) Approve the New England Deaconess Hospital Institutional Master Plan; (3) Authorize the Director to enter into a Cooperation Agreement with the New England Deaconess Hospital and other agreements required by or incidental to the Cooperation Agreement; (4) Approve the Development Impact Project Plan ("DIP Plan") submitted by the New England Deaconess Hospital in connection with the Proposed Project; (5) Authorize the Director to enter into a Development Impact Project Agreement ("DIP Agreement") with the New England Deaconess Hospital in connection with the Proposed Project; and (6) Authorize the Director to issue an Adequacy Determination for the New England Deaconess Hospital Research Facility Project upon completion of the Authority's Article 31 process.

Appropriate votes follow:

VOTED: That the Boston Redevelopment Authority authorize the Director to petition the Zoning Commission to adopt Article 72 and related text and map amendments establishing the New England Deaconess Hospital Institutional District, in substantial accord with the text and map amendments submitted to the Authority at its hearing on December 22, 1993; and further

VOTED: That the Boston Redevelopment Authority approve the New England Deaconess Hospital Institutional Master Plan presented to the Authority at its hearing on December 22, 1993; and authorize the Director to petition the Zoning Commission to adopt a zoning map amendment depicting the New England Deaconess Hospital Institutional Master Plan Area in substantial accord with the map

amendment submitted to the Authority at its hearing on December 22, 1993; and further

VOTED: That with respect to the Cooperation Agreement presented to the Authority at its hearing on December 22, 1993 (the "Cooperation Agreement"), the Boston Redevelopment Authority authorizes the Director, in the name and on behalf of the Authority, to execute and deliver: (1) the Cooperation Agreement in the form presented at the Authority's December 22, 1993 hearing, subject to such revisions deemed necessary and appropriate by the Director, and (2) all other agreements and documents required by or incidental to the Cooperation Agreement; and further

VOTED: That with respect to the Proposed Project at 169-171 Pilgrim Road (the "Proposed Project") presented to the Boston Redevelopment Authority at its public hearing on December 22, 1993 by the New England Deaconess Hospital, the Boston Redevelopment Authority hereby issues the following findings, approvals, and authorizations:

(1) With respect to the requirements of Articles 26 through 26B (Development Impact Projects) of the Boston Zoning Code, as amended:

(a) The Boston Redevelopment Authority, after due consideration of the evidence presented at the Authority's public hearing on December 22, 1993, finds that the Development Impact Project Plan presented at said hearing (the "DIP Plan"): (i) conforms to the general plan for the City of Boston as a whole; (ii) contains nothing that will be injurious to the neighborhood or otherwise detrimental to the public welfare; and (iii) does adequately and sufficiently satisfy all other requirements of Articles 26 through 26B for a Development Impact Project Plan; and further

(b) The Boston Redevelopment Authority approves the DIP Plan presented at the Authority's December 22, 1993 hearing. Said DIP Plan is embodied in a written document entitled "Development Impact Project Plan for the New England Deaconess Hospital" and exhibits thereto; and further

(c) The Boston Redevelopment Authority authorizes the Director, in the name and on behalf of the Authority:

(i) To execute and deliver: (1) a Development Impact Project Agreement in the form presented at the Authority's December 22, 1993 public hearing, subject to such revisions deemed necessary and appropriate by the Director (the "DIP Agreement"), and (2) any other agreements with New England Deaconess Hospital required by or incidental to the DIP Agreement; and

(ii) To certify: (1) that plans submitted to the Inspectional Services Department in connection with the Proposed Project conform to the DIP Plan, at such time as the Director, in his discretion, determines that such plans so conform; and (2) that New England Deaconess Hospital has entered into a DIP Agreement with the Authority that meets all of the requirements of Articles 26 through 26B of the Boston Zoning Code, as amended; and further

(2) With respect to Development Review of the Proposed Project under Article 31 of the Boston Zoning Code, as amended, the Boston Redevelopment Authority authorizes the Director to issue an Adequacy Determination upon completion of the Authority's Article 31 process, provided that the final design review approval shall not be granted prior to the execution of a Transportation Access Plan Agreement for the New England Deaconess Hospital Research Facility project (the "TAP Agreement"), and provided further that New England Deaconess Hospital shall enter into a Boston Residents Construction Employment Plan, a Memorandum of Understanding, a First Source Agreement and other necessary agreements with the Mayor's Office of Jobs and Community Services with respect to the Proposed Project; and further

(3) The Boston Redevelopment Authority authorizes the Director to certify, in the name and on behalf of the Authority, that the plans submitted to the Inspectional Services Department in connection with the Proposed Project are consistent with the description of such Proposed Project in the New England Deaconess Hospital Institutional Master Plan at such time as the Director, in his discretion, determines that such plans are so consistent; and further

VOTED: That any agreements or other documents executed by the Director on behalf of the Boston Redevelopment Authority pursuant to the

authority granted by the foregoing votes shall include such terms and conditions as the Director deems appropriate and in the best interests of the Authority, the Director's execution and delivery of such agreements and other documents to be conclusive evidence of the Director's determination and of the authorization granted to him hereunder. All agreements, plans, and other documents approved by the Boston Redevelopment Authority, or executed by its Director, pursuant to such votes, shall be on file in the office of the Boston Redevelopment Authority.

APPENDIX E

National Register Inventory Form for Olmsted Park

61 11.K. – 12.2.71 Office Copy

Office Copy 4

Form 10-300
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY – NOMINATION FORM

(Type all entries – complete applicable sections)

STATE: Massachusetts

COUNTY: Norfolk-Suffolk

FOR NPS USE ONLY

ENTRY NUMBER:

DATE:

SEE INSTRUCTIONS

1. NAME

COMMON: Olmsted Park System Cong. Dists: 8+9

AND/OR HISTORIC:

2. LOCATION see separate sheet

STREET AND NUMBER: Back Bay Fens, Muddy River, Olmsted (Leverett) Park, Jamaica Park, Arborway, Franklin Park

CITY OR TOWN: Boston-Brookline

STATE	CODE	COUNTY:	CODE
Massachusetts	25	Norfolk-Suffolk	21-25

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
☒ District ☐ Building ☐ Site ☐ Structure ☐ Object	☒ Public ☐ Private ☐ Both Public Acquisition: ☐ In Process ☐ Being Considered	☒ Occupied ☐ Unoccupied ☐ Preservation work in progress	Yes: ☐ Restricted ☒ Unrestricted ☐ No

PRESENT USE *(Check One or More as Appropriate)*

☐ Agricultural	☐ Government	☒ Park	☒ Transportation	☐ Comments
☐ Commercial	☐ Industrial	☐ Private Residence	☐ Other *(Specify)*	
☐ Educational	☐ Military	☐ Religious		
☐ Entertainment	☐ Museum	☐ Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME: City of Boston, Town of Brookline

STREET AND NUMBER: City Hall Town Hall

CITY OR TOWN:	STATE:	CODE
Boston Brookline	Norfolk-Suffolk	21-25

STATE: Mass.

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: Suffolk Registry of Deeds Norfolk Registry of Deeds

STREET AND NUMBER: Suffolk Couty Courthouse Norfolk County Courthouse

CITY OR TOWN:	STATE	CODE
Boston Dedham	Mass.	25

COUNTY: Norfolk Suffolk

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: Inventory of the historic assets of the Commonwealth

DATE OF SURVEY: 1971 ☐ Federal ☒ State ☐ County ☐ Local

DEPOSITORY FOR SURVEY RECORDS: Massachusetts Historical Commission

STREET AND NUMBER: Office of the Secretary, State House

CITY OR TOWN:	STATE:	CODE
Boston,	Mass.	025

ENTRY NUMBER

DATE

7. DESCRIPTION

CONDITION	*(Check One)*					
	☐ Excellent	☒ Good	☐ Fair	☐ Deteriorated	☐ Ruins	☐ Unexposed
	(Check One)			*(Check One)*		
	☒ Altered (addition)	☐ Unaltered		☐ Moved	☒ Original Site	

DESCRIBE THE PRESENT AND ORIGINAL *(if known)* PHYSICAL APPEARANCE

The Olmsted Park System includes a series of parks linked by continuous parkways. It curves south from the mouth of the Muddy River to Franklin Park. When originally conceived, the System also included Boston's existing parks, the Common and the Public Garden which were linked to the Olmsted Plan by the Commonwealth Avenue mall.

One of the most heavily used portions of the System is that which comprises the Fens. Olmsted's plan eliminated the original tidal swamp with its dangers of pollution and flooding, and created an informal park. In the section of the Fens north of Boylston Street, although the boundaries remain the same, an overpass access to and from Storrow Drive has mutilated the original landscape design. However, the formal modern design and the plantings are spectacular, an the material used to face the overpass structures is compatible with Richardson' Boylston Street bridge, which was built between 1880-84. Other alterations to the Fens area have been restricted to changes in park land use and have not affected the boundaries and road patterns proposed by Olmsted in 1879. Much of the original swamp has been filled in, although the swamplike vegetation originally used by Olmsted remains along a short portion of the River. Except for a low stadium which desecrates the original design at the junction of the Fenway and Park Drive, most of the remainder of the park presently consists of grass, shade trees and gardens. West of the Muddy River are formal rose garden and small neat gardens tended by nearby residents of the area. These plots began as "Victory Gardens" during World War II and today serve as vivid reminder of that historic preiod. The most important original structures in this area are Richardson's Boylston Street bridge and the Agassiz Bridge, built in 1887-88.

A linear park, though which the Muddy River flows, links the Fens with Jamaica Pond. Various names have been given to this area, the most common of which are "The Riverway", which extends from the Fens to Route 9, and "Leverett" (or Olmsted) Park". In these areas the River was an eyesore and a cause of sanitation problems. To remedy these, Olmsted created a plan for the sanitary improvement of the River and to connect the Fens with Jamaica Park in 1881. The result is a greenscape which curves sinuously following the natural contours of the River valley. At the southern end of this portion of the System, the River ends in a series of fresh water ponds, the largest of which is called Leverett. With the exception of a large parking lot near Brookline Avenue, some poorly designed recreational facilities near the Ponds, and a large overpass at Route 9, this section of the System remains most of its original design. The original structures date from the early to mid-1890's and were designed by Shepley, Rutan and Coolidge. These include 3 vehicular bridges, 2 footbridges, and a stone shelter on the Riverway.

Jamaica Park was designed in 1892, but only in 1894 was construction on it begun. Jamaica Pond, the only fresh water body of any size within the city limits, and one of the important features of the entire Park System, occupies a major portion of the Park. In his designs, Olmsted bordered the Pond with paths and shade trees. He encircled it with parkways by utilizing the existing parkway on the eastern side (Jamaicaway) and adding roads on the western side. He incorporated the Perkins Mansion ("Pine Bank" House), situated at the northern end of the Pond, in his plans. This structure, the third to stand on the site, was built in 1870 in the Ruskinian Gothic style. After a fire, the City Architect Wheelwright remodelled the interior, roof, chimneys and garden terrace in 1896. The Boston Parks Department uses the house as headquarters for its recreational division. The stone steps, which lead from the house to the Pond, were taken from the John Hancock House. The Park and road patterns

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Mass.
COUNTY	Norfolk-Suffolk
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries) BOSTON: Olmsted Park System

7. DESCRIPTION

remain intact, and the Pond is still used for its original purpose of boating and fishing. In 1906, Daniel Chester French carved the Francis Parkman Memori which stands on a sloping lawn at the western side of the Park.

At the same time that Jamaica Park was being developed, the Parkway (Arborway) was continued from it along the edge of the Arnold Arboretum[2] to Franklin Park. An overpass and new road patterns have obliterated the short portion from the east end of the Arboretum to Franklin Park. Despite the addition of two traffi rotaries, the rest of the Parkway retains not only Olmsted's street design, b a great many of the original trees which have now grown to an impressive heigh completely shading the Arborway.

Franklin Park, the terminus of the System, is unquestionably one of Olmsted masterpieces. In 1885, Olmsted designed this large rural park especially for w class people. The largest area of the property, "The Country Park"was reserve exclusively "to provide opportunity for a form of recreation to be obtained on through the influence of pleasing natural scenery upon the sensibilities of th quietly contemplating it."[1] "The Country Park" has been used as a golf course since the late nineties. Although this was not the use which Olmsted intended it has ensured preservation and a standard of maintenance for at least this po of the Park. Other areas were set aside for sports (the Playstead, on which ha been built White Stadium), a deer park, now part of the Zoo, and a playground for small children. The only formal part of the Park is a grand mall, called "The Greeting", designed for use as a promenade and meeting place. The Greeti was never completely planted as planned and has been incorporated into part of Zoo. Two monuments that Daniel Chester French designed in 1882 for the Boston Post Office are now located at the northern entrance to the Greeting. These groups represent "Labor, Art and the Family" and "Science Controlling the Force of Steam and Electricity."

lin Park
tory
shed
1976

The Park is still used for horseback riding and Olmsted's road pattern is intact. Much of the fine original stonework remains, although in bad conditio These structures include the Playstead Overlook (1885-88) and the terraces and arbors on Schoolmaster's Hill (1890=91), both of which appear on Olmsted's 1885 plan, the Valley Gate (1888-89 by Walker and Best) and several rustic fountains. A State hospital, the Shattuck, has been erected on what was formerly the Heathfield on Morton Street.

[1] Fabos, Julius G.Y., Milde, Gordon T., and Weinmayr, V. Michael, Frederick Law Olmsted, Sr., 1968, University of Massachusetts Press.

2.NOTE: Since the Arnold Arboretum has already been declared a National Histori Landmark, it is not included in this nomination.

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Mass.
COUNTY	Norfolk-Suffolk
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries) BOSTON: OLMSTED PARK SYSTEM

2. Location, cont. - Note: The description below should not be considered
legal description.

Beginning at the intersection of Morton Street and Forest Hills Street; Thence turning and running westerly and northwesterly by the center line of Morton St and the Arborway; Thence turning and running northwesterly and northerly by th southerly, southwesterly and westerly line of the Arborway to a point at the intersection of the Arborway and Centre St; Thence turning and running northe and northeasterly by the westerly and northwesterly line of the Arborway to th intersection of the Arborway and Prince St; Thence turning and running general northwesterly by the center line of Prince St. to a point at the intersection of Perkins St.; Thence turning and running northeasterly and northerly by the northwesterly and northerly line of Perkins St. to a point at the intersectio of Perkins St. and Pond Avenue; Thence turning and running northerly, northeasterly, easterly and northerly by the westerly, northwesterly, westerly and northwesterly line of Pond Avenue and Boylston Street; Thence turning and running westerly by the center line of Boylston Street to the intersection of Boylston St. and River Road; Thence turning and running northerly, northeaste and northerly again by the center line of River Rd. to a point at the intersec of River Rd. and Brookline Avenue; Thence turning and running northeasterly b the center line of Brookline Avenue to a point at the intersection of Brooklin Avenue and Parkway Road; Thence turning and running northwesterly along the center line of Parkway Rd. to the intersection of Netherlands Rd.; Thence turning and running northwesterly in a straight line to the southeastern boundary of the Massachusetts Bay Transit Authority line; Thence turning and running northwesterly by the center line of said Massachusetts Bay Transit Authority line to the intersection of said line and Park Drive; Thence turnin and running southeasterly, easterly, northeasterly and northerly by the northeasterly, northerly, northwesterly and westerly line of Park Drive to the inte section of Park Drive and Boylston St; Thence turning and running northeaster northerly by the northwesterly line of Boylston St. and easterly line of priva property to a point at the northwest side of Ipswich St. and the southerly lin of Interstate Route 90; Thence turning and running easterly by the southerly line of Interstate Route 90 to a point at the northeast corner of Ipswich St. the intersection of Charlesgate East; Thence turning and running southwesterly by the southeasterly line of Charlesgate East to the intersection of Boylston St. and the Fenway; Thence turning and running southerly, southwesterly, weste and northwesterly by the easterly, southeasterly, southerly and southwesterly line of theFenway to the intersection of the Fenway and Brookline Avenue; The turning and running northwesterly, westerly, southwesterly, southerly, southea woutherly and southwesterly by the southwesterly, southerly, southeasterly easterly, northeasterly, easterly and southeasterly line of the Riverway to th intersection of the Riverway and Huntington Avenue; Thence turning and runnin generally southerly, southwesterly, southerly, southeasterly, southerly, south and easterly by the easterly, southeasterly, easterly, northeasterly, easterly northeasterly and northerly lines of Jamaicaway, Pond St. and the Arborway to the intersection of the Arborway and Forest Hills Street; Thence turning and

running northeasterly and northerly by the center line of Forest Hills Street the intersection of Forest Hills Street and Glen Road; Thence turning and

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
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INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Mass.
COUNTY	Norfolk-Suffolk
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

BOSTON: OMSTED PARK SYSTEM, CONT.

2 LOCATION, CONT.

running southeasterly by the center line of Glen Road to the intersection of Glen Rd. and Sigourney St.; Thence turning and running northeasterly by the center line of Sigourney St. to the intersection of Sigourney St. and Peter Parley Rd.; Thence turning and running notherly and northeasterly by the center line of Walnut Avenue to the intersection of Walnut Avenue and Seaver St.; Thence turning and running southeasterly by the center line of Seaver St to the intersection of Seaver St. and Blue Hill Avenue; Thence turning and running southeasterly by the center line of Blue Hill Avenue to the intersect of Blue Hill Avenue and American Legion Highway; Thence turning and running s westerly by the center line of American Legion Highway to the intersection of American Legion Highway and Canterbury St.; Thence turning and running wester by the center line of Canterbury St. to the intersection of Canterbury St. and Morton Street; Thence turning and running northwesterly and westerly by the center line of Morton St. to the intersection of Forest Hills Street and Morto Street.

Northern section of the Fens
Beginning at the northwest roner of Back Street at its intersection with Charlesgate West; Thence turning and running northeasterly to the northeast corner of Back St. at its intersection with Sharlesgate East; Thence turning and running southerly by the easterly line of Charlesgate East to the northern boundary of Interstate Route 90; Thence turning and running westerly by the northerly line of Interstate Route 90; Thence turning and running northerly by the westerly line of Charlesgate West to the point of beginning.

10. Geographical Data

Muddy River/Jamaica Park

NW	Lat 42°20'47"	Long. 71°06'27"	
NE	42 20 35	71 05 57	
SE	42 18 43½	71 07 11	
SW	42 18 57½	71 07 43	(Newton Quad)

Arborway

NW	42 18 35½	71 07 41	(Newton Quad)
NE	42 18 49	71 07 22	
SE	42 18 02½	71 06 23	
SW	42 17 48½	71 06 42	

Franklin Park

NW	42 18 47	71 06 23
NE	42 18 47	71 05 08
SE	42 17 35	71 05 08
SW	42 17 35	71 06 23

8. SIGNIFICANCE

PERIOD *(Check One or More as Appropriate)*

☐ Pre-Columbian!
☐ 15th Century
☐ 16th Century
☐ 17th Century
☐ 18th Century
☒ 19th Century
☒ 20th Century

SPECIFIC DATE(S) *(If Applicable and Known)* 1879, 1881, 1885, 1892

AREAS OF SIGNIFICANCE *(Check One or More as Appropriate)*

Aboriginal
- ☐ Prehistoric
- ☐ Historic

☐ Agriculture
☐ Architecture
☐ Art
☐ Commerce
☐ Communications
☐ Conservation
☐ Education
☐ Engineering
☐ Industry
☐ Invention
☒ Landscape Architecture
☐ Literature
☐ Military
☐ Music
☐ Political
☐ Religion/Philosophy
☐ Science
☐ Sculpture
☐ Social/Humanitarian
☐ Theater
☐ Transportation
☒ Urban Planning
☒ Other *(Specify)*

Recreation

STATEMENT OF SIGNIFICANCE

The comprehensive parksystem which Frederick Law Olmsted Sr. planned for the City of Boston in the late 1870's is one of the nation's outstanding examples of a multi-use open space and the landscape architect's finest design project in New England. Olmsted's work on the system, which became known as the "Emerald Nec around Boston," created a storng precedent for it included all the design and planni elements which later landscape architects have applied to regional planning on a large scale.

Olmsted's original plans for the park system had three purposes: to cre needed municipal open space while solving an engineering problem; to link n annexed parts of the city with its historic center; to provide - as in his earlier designs for Central Park (1857-63) - a variety of forms of recreati Olmsted established a hierarchy of uses for areas within the system, creati large- and medium-size parks for rural relaxation and picknicking, smaller landscaped areas with ponds for recreation and linear parkland for pleasure driving, riding and hiking. Though they were never carried out completely, sketches of circulation patterns suggest that Olmsted intended to separate traffic within the park system according to volume and type, again like his plans for Central Park.

The Bay Bay Fens and the Fenway were the first portions of the park syst to be planned. Into the 1870's the Fens were a tidal swamp which served as a repository for sewage and were subject to violent floods. The three-man Boston Park Commission was created in 1875 primarily to find a solution to this problem. Following an unsuccessful competition for a design, Olmsted was asked to prepare a new plan for the Fens. Using swamp-like vegetation able to withstand periodic soakings with salt water, he created an informal park which was a unique feat of engineering skill and naturalistic landscapi

Franklin Park, the terminus of thesystem, is one of Olmsted's masterpiece This large rural park, included in the earliest schemes for Boston's park system, was financed in part by a bequest made to the city by Benjamin Fran Olmsted's plan for the Pranklin Park area was completed and work begun in 1 Though the surrounding area was still rural, Olmsted anticipated the growth of the city in this direction and designed the Park as a retreat for workin class people whose access to open space would be limited without it. In his concern for the social and humanitarian aspects of park design, Olmsted was influenced by the work of Joseph Paxton, whose "People's Park" at Birkenhea (England) he had first visited in 1850. Olmsted's plan for Franklin Park is a more elaborate and highly articulated version of Paxton's Brikenhead design.

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Board of Commissioners of the Department of Parks, Boston, Mass., Annual Reports and Special Reports, 1876-1900.

Olmsted, Frederick Law, "Notes on the Plan of Franklin Park and Related Matters", Eleventh Annual Report, Boston Park Department, Boston, 1886.

Fabos, Julius GY., Milde, Gordon T., & Weinmayr, V. Michael, Frederick Law Olmsted, Sr. Massachusetts, University of Massachusetts Press. 1968.

10. GEOGRAPHICAL DATA see separate sheet

BACK BAY FENS

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY

CORNER	LATITUDE			LONGITUDE		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NW	42 °	21 '	07 "	71 °	06 '	03 "
NE	42 °	21 '	07 "	71 °	05 '	27 "
SE	42 °	20 '	19 "	71 °	05 '	27 "
SW	42 °	20 '	19 "	71 °	06 '	03 "

OR

LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES

LATITUDE			LONGITUDE		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
°	'	"	°	'	"

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: estimated 843

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
Mass.	25	Norfolk	21
Mass.	25	Suffolk	25

11. FORM PREPARED BY

NAME AND TITLE: Anne R. Wardwell, Survey Director

ORGANIZATION: Massachusetts Historical Commission

DATE: 7/1/71

STREET AND NUMBER: Office of the Secretary, State House

CITY OR TOWN: Boston

STATE: Mass.

CODE: 25

12. STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☒ State ☐ Local ☐

Name

Title Secretary of the Commonwealth, Chairman, Mass. Historical Commission

Date 7/2/71

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

Chief, Office of Archeology and Historic Preservation

Date

ATTEST:

Keeper of The National Register

Date

SEE INSTRUCTIONS

APPENDIX F

Community Benefits

DEACONESS HOSPITAL

COMMUNITY BENEFITS DOCUMENT

November 17, 1993

Job Training and Permanent Employment - Deaconess Hospital will work on a partnership basis with the local neighborhood residents to undertake the following initiatives:

* Deaconess Hospital will work with the local community and city agencies to develop a job creation proposal to serve the residents of the local community that coordinates with other LMA employment and training initiatives using the job linkage funds from the project, currently estimated at $236,000.

* Deaconess Hospital will target current employees from the local community for skills upgrading opportunities.

* Deaconess Hospital will target new employment opportunities to qualified community residents.

* Deaconess Hospital commits to increasing the number of employees from the local community and to working with appropriate people in the community to accomplish this objective.

* Deaconess Hospital will designate a staff person to coordinate training and recruitment efforts.

* Deaconess Hospital will distribute notices of available positions on a regular basis to locations to be agreed upon by the community. In general, notices will be distributed before ad is placed in newspaper.

* Deaconess is willing to explore in conjunction with other institutions and community groups ways of expanding the methods by which neighboring residents are informed and advised of employment positions available.

* Deaconess Hospital will participate in job fairs to create awareness of employment opportunities.

* Deaconess Hospital will coordinate and integrate with the City of Boston's existing job training programs to enlarge the pool of prospective employees from the local neighborhood.

* Deaconess Hospital will offer counseling sessions for potential employees.

* Deaconess Hospital will use the services of local community agencies, such as the Private Industry Council, as a source of referrals for employment opportunities and to increase the representation of local neighborhood residents in the applicant pool for employment at the Hospital.

- Deaconess Hospital will submit a Boston Residents Construction Employment Plan to describe its proposed procedures to meet the goals of the Boston Residents Job Policy for persons employed by Deaconess Hospital in the construction of the project. Deaconess Hospital submitted such a plan for its clinical building.

Neighborhood Residency

- Deaconess Hospital will work with the appropriate parties to develop a specific housing proposal to promote neighborhood stabilization and home ownership opportunities using the housing linkage funds from this project, currently estimated at $1,180,000.

- Deaconess Hospital will participate in the Walk-to-Work program that may be established by MASCO for area-wide implementation in the LMA, including the following:

    - Deaconess Hospital will disseminate informational pamphlets and materials about the local neighborhood including housing opportunities. Available materials will be incorporated into employee orientation packages and will be presented to department heads;

    - Deaconess Hospital will make information on housing opportunities in the local neighborhood available to its employees through postings and other marketing strategies. Specific bulletin board space will be made available for Walk-to-Work housing opportunities;

    - Deaconess Hospital will allow community members to post housing opportunities on a bulletin board located at the Hospital;

    - Deaconess Hospital will maintain a list of realtors, non-profit housing owners, apartment managers and other property owners in an effort to help employees locate housing in the local neighborhood.

- Deaconess will communicate with its employees in a variety of ways about housing opportunities in the local neighborhood.

Transportation

- Deaconess Hospital will continue to support MASCO's LMA-wide traffic mitigation programs.

- Deaconess Hospital will promote increased transit ridership by persons in the Project as follows:

    - Deaconess Hospital provides for the sale of MBTA passes and subsidizes 40% of the cost of MBTA passes for Deaconess Hospital employees;

  - Deaconess Hospital will provide public transportation promotional materials to persons working on the Project.

- * Deaconess Hospital will tell contractors on the Project that parking in the LMA will not be available for construction workers.

- * Deaconess Hospital has created a Commuter Mobility Plan for the Hospital in cooperation with MASCO and the Boston Transportation Department which includes the promotion and subsidization of ridesharing and car and vanpooling opportunities.

Purchasing and Contracts

- * Deaconess Hospital will encourage the procurement of goods and services from local businesses by making use of local business directories that may be generated by the BRA, MASCO, or the community.

- * Deaconess Hospital in partnership with MASCO and other LMA institutions will hold a business services fair on an annual basis to let vendors and small businesses present their goods, and will participate in workshops designed to introduce local vendors to the business practices of LMA institutions.

Pilot Payments

- * Deaconess Hospital will be discussing PILOT payments for the Project with the City Tax Assessors.

Progress Reports

- * Deaconess Hospital will provide a report on a biannual basis of progress implementing the cooperation agreement approved in conjunction with this project. Progress reports will include the number of people from the local community employed by the Hospital.

Other Community Services

- * In addition to the above project-related community benefits, Deaconess Hospital will continue its support of and participation in efforts to serve the people of the local neighborhood and the City of Boston. For example, the Hospital has:

  - Supported several community health centers, including:
    1. Fenway Community Health Center
    2. Mattapan Community Health Center
    3. Roxbury Comprehensive Community Health Center
    4. Whittier Street Neighborhood Health Center

  - Supported the Mission Possible Summer Program, which provides recreational, educational, and employment opportunities for the young people of Mission Hill;

- Supported Mission Hill Sports Camp;

- Participated in the LMA/Mission Hill/Fenway Food Project, which provides emergency food assistance and nutrition program support to individuals and organizations in the local neighborhood;

- Supported Mission Hill Neighborhood Housing Services;

- Participated in Health Fair sponsored by Gloucester Memorial Church and Mission Hill community;

- Supported Mission Hill Community Center's voter registration drive;

- Supported and participated in Fenway Development Corporation's 20th Anniversary Celebration;

- Participated in the Private Industry Council's Summer Jobs Program and Project ProTech -- aimed at exposing students to careers in healthcare.

APPENDIX G

Site Assessment Report Tables and Figures

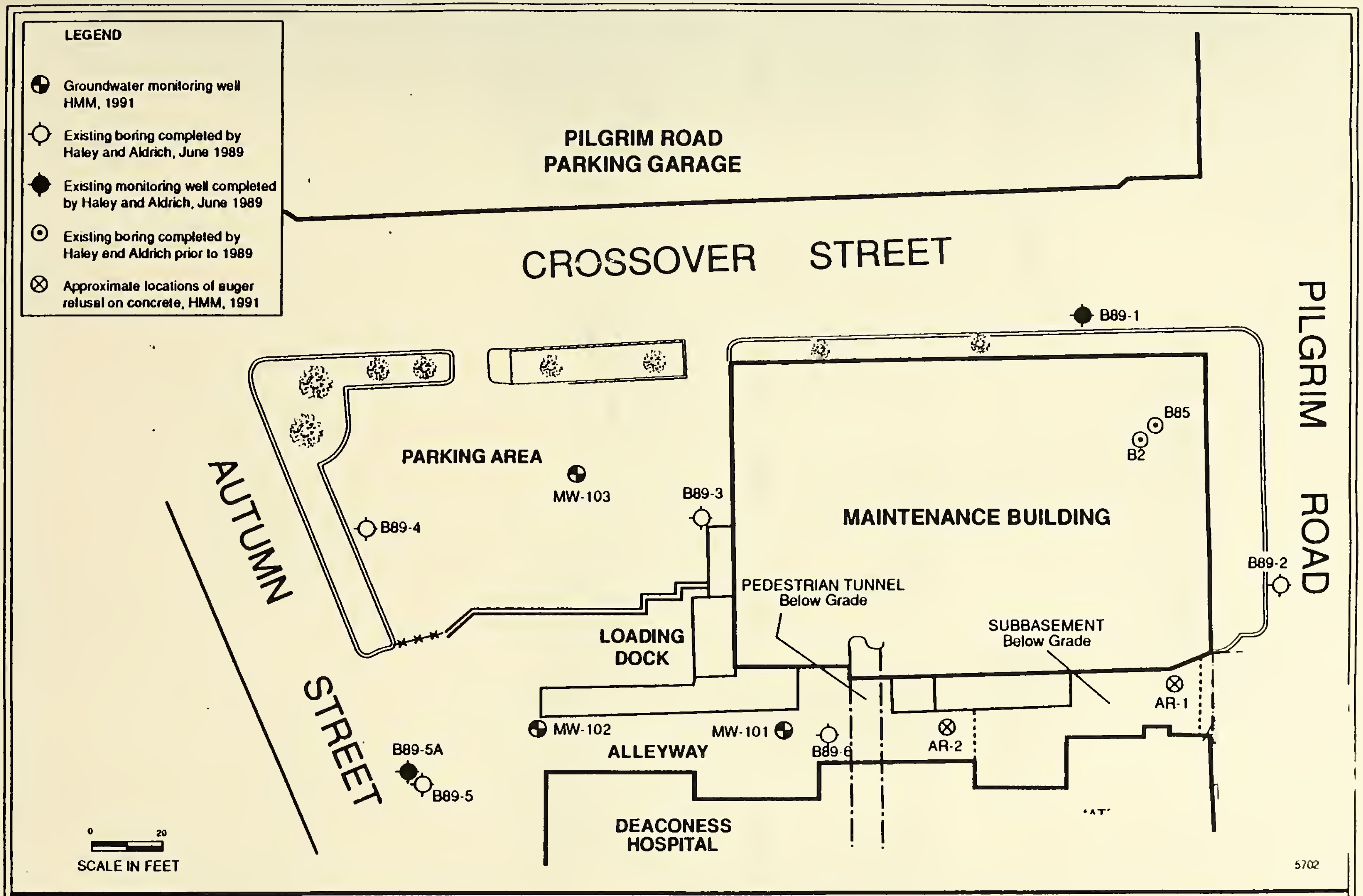
LEGEND
Groundwater monitoring well HMM, 1991
Existing boring completed by Haley and Aldrich, June 1989
Existing monitoring well completed by Haley and Aldrich, June 1989
Existing boring completed by Haley and Aldrich prior to 1989
Approximate locations of auger refusal on concrete, HMM, 1991
PILGRIM ROAD PARKING GARAGE
CROSSOVER STREET
PILGRIM ROAD
B89-1
B85
B2
PARKING AREA
MW-103
B89-3
MAINTENANCE BUILDING
B89-4
B89-2
PEDESTRIAN TUNNEL Below Grade
SUBBASEMENT Below Grade
LOADING DOCK
AUTUMN STREET
AR-1
MW-102
MW-101
B89-6
AR-2
ALLEYWAY
B89-5A
B89-5
DEACONESS HOSPITAL
0
20
SCALE IN FEET
5702

FIGURE 2
NEW ENGLAND DEACONESS HOSPITAL
RESEARCH CENTER PROJECT
SITE MAP WITH BORING/WELL LOCATIONS

TABLE 1
GROUNDWATER GAUGING DATA
NEDH RESEARCH CENTER

HMM ASSOCIATES, INC.

PROJECT: NEDH Research Center
LOCATION: Boston, MA

HMM JOB #: 5702
DATE: 10/8/91

WELL #	DATE	TIME	**HELD** -	**WET** =	**DTW**	MP ELEV.	W/L ELEV.
MW-101	10/8/91	8:15 AM	35.0	0.94	34.06	103.57	69.51
MW-102	10/8/91	8:00 AM	35.0	1.33	33.67	103.11	69.44
MW-103	10/8/91	7:45 AM	39.0	0.92	38.08	107.48	69.41

NOTES:

ALL MEASUREMENTS ARE FROM THE TOP OF PVC.
ALL MP ELEVATIONS AND W/L ELEVATIONS ARE RELATIVE AND NOT ABSOLUTE ELEVATIONS.
HELD: LENGTH OF STEEL TAPE INSERTED INTO WELL.
WET: LENGTH OF STEEL TAPE BELOW WATER LEVEL.
DTW: TOTAL DEPTH TO WATER
MP ELEV: MEASURING POINT ELEVATION
W/L ELEV: WATER LEVEL ELEVATION

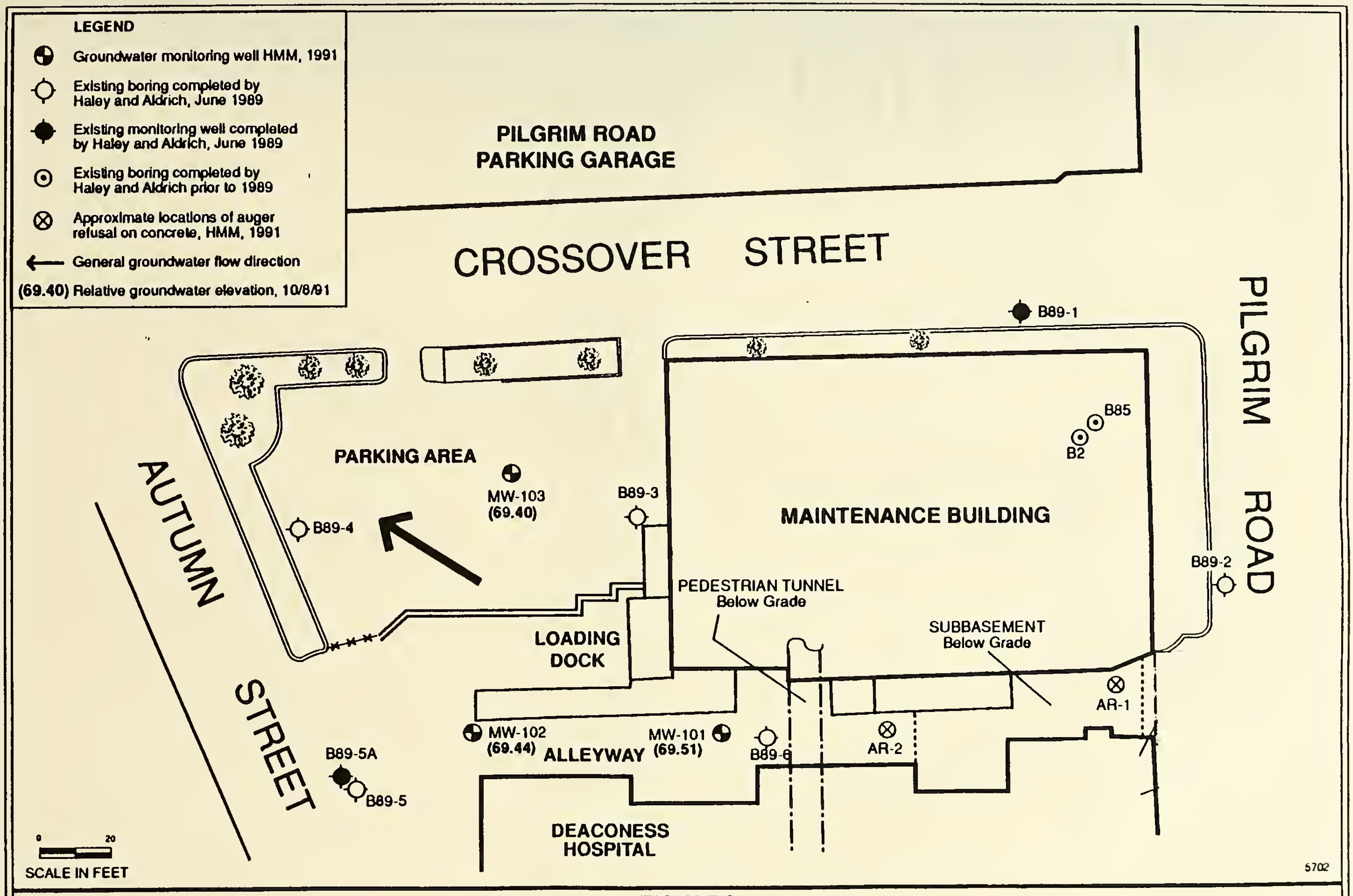
LEGEND
Groundwater monitoring well HMM, 1991
Existing boring completed by Haley and Aldrich, June 1989
Existing monitoring well completed by Haley and Aldrich, June 1989
Existing boring completed by Haley and Aldrich prior to 1989
Approximate locations of auger refusal on concrete, HMM, 1991
General groundwater flow direction
(69.40) Relative groundwater elevation, 10/8/91
PILGRIM ROAD PARKING GARAGE
CROSSOVER STREET
PILGRIM ROAD
B89-1
B85
B2
MAINTENANCE BUILDING
B89-2
PARKING AREA
MW-103 (69.40)
B89-3
B89-4
AUTUMN STREET
PEDESTRIAN TUNNEL Below Grade
SUBBASEMENT Below Grade
LOADING DOCK
AR-1
AR-2
MW-102 (69.44)
ALLEYWAY
MW-101 (69.51)
B89-6
B89-5A
B89-5
DEACONESS HOSPITAL
0
20
SCALE IN FEET
5702

FIGURE 3
NEW ENGLAND DEACONESS HOSPITAL
RESEARCH CENTER PROJECT
GROUNDWATER ELEVATIONS AND GENERAL FLOW DIRECTION

TABLE 2
SOIL QUALITY RESULTS
NEDH RESEARCH CENTER

Sample ID.	MW-101	MW-102	MW-102 Dup	MW-103	
Depth (ft.)	5-12	5-12	5-12	5-17	
Parameter					**MDL**
Volatile Organic Compounds (ug/Kg)	ND	ND	ND	ND	*
Total Petroleum Hydrocarbons (mg/Kg)	70	ND	ND	42	40
Polynuclear Aromatic Hydrocarbons (ug/Kg)	ND	ND	ND	ND	*

NOTES:

ND = NON DETECTED
MDL = METHOD DETECTION LIMIT
ug/Kg = MICROGRAMS PER KILOGRAM (APPROX. EQUAL TO PARTS PER BILLION)
mg/Kg = MILLIGRAMS PER KILOGRAM (APPROX. EQUAL TO PARTS PER MILLION)
* = MDLs ARE VARIABLE FOR INDIVIDUAL COMPOUNDS.
SEE ATTACHED LABORATORY DATA CERTIFICATES FOR COMPLETE LISTING OF DETECTION LIMITS

TABLE 3
GROUNDWATER QUALITY RESULTS
NEDH RESEARCH CENTER

Sample ID.	MW-101	MW-102	MW-102 Dup.	MW-103	
Parameter					**MDL**
Volatile Organic Compounds (ug/l)	ND	ND	ND	ND	*
Total Petroleum Hydrocarbons (mg/l)	ND	ND	ND	ND	0.5

NOTES:

ND = NON DETECTED
MDL = METHOD DETECTION LIMIT
ug/l = MICROGRAMS PER LITER (APPROX. EQUAL TO PARTS PER BILLION)
mg/l = MILLIGRAMS PER LITER (APPROX. EQUAL TO PARTS PER MILLION)
* = MDLs ARE VARIABLE FOR INDIVIDUAL COMPOUNDS
SEE ATTACHED LABORATORY DATA CERTIFICATES FOR COMPLETE LISTING OF DETECTION LIMITS

APPENDIX H

MWRA Prohibited Wastes and Local Limits

APPENDIX H
MWRA PROHIBITED WASTES AND LOCAL LIMITS (360 CMR 10)

10.021: General Prohibition

No Person shall discharge or cause or allow to be discharged, directly or indirectly, to the Authority Sewerage System any Wastewater, Sanitary Sewage, or substance that, either singly or in combination with any other Wastewater, will:

(1) Harm or interfere with the Authority Sewerage System or a Municipal Sewer;

(2) Cause Pass Through or Interference, or be otherwise incompatible with the Authority wastewater treatment process, including Sludge use, management, or disposal;

(3) Cause a violation of any federal or state law or any federal or state permit issued to the Authority;

(4) Affect adversely Receiving Waters or violate water quality criteria.

(5) Endanger or threaten to endanger the life, health, or welfare of any person or persons, or the public health, safety, or welfare, or the environment, or public property.

(6) Constitute a nuisance.

10.022: National Pretreatment Standards

Every Person who discharges Wastewater directly or indirectly to the Authority Sewerage System shall comply with the strictest of the following discharge limits applicable to the discharge: the National Pretreatment Standards, state limits, local limits, limits contained in 360 CMR 10.000. or limits in a permit or order issued under 360 CMR 10.000. If a National Categorical Pretreatment Standard includes a limit in addition to a daily maximum limit (e.g., 30 day, monthly, weekly, four day, loading, or production-based limit), that limit must be met in addition to the more stringent of the Daily Maximum Limits.

10.023: Specific Prohibitions

No Person shall discharge, or cause or allow to be discharged, directly or indirectly, into the Authority Sewerage System, any of the following:

(1) Groundwater, storm water, surface water, roof or surface runoff, tidewater, or subsurface drainage, except construction site dewatering in a combined sewer area when permitted by the Authority and municipality.

(2) Non-Contact Cooling Water, non-contact industrial process water, uncontaminated Contact Cooling Water, and uncontaminated industrial process water, except:

   (a) As permitted by the Authority when the discharger has taken all reasonable efforts to eliminate and minimize the flow, there is not reasonable access to a storm sewer, surface water, or another disposal alternative, and the amount to be discharged will not have an actual or potential adverse impact on the sewer system, the treatment plant, the quality of the receiving water, or the Authority's ability to meet its obligations under any law, regulation, permit, or order; and

   (b) Cooling tower blowdown.

(3) Fuel oil, crude oil, lubricating oil or any other oil or grease of hydrocarbon or petroleum origin in excess of 15 milligrams per liter.

(4) Any liquid, solid, or gas, including, but not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides and methyl ethyl ketone, which by reason of its nature or quantity is or may be sufficient, either alone or by interaction with other substances, to create a fire or explosion hazard or to be otherwise injurious to a Municipal Sewerage System, the Authority Sewerage System, Treatment System, or to Receiving Waters, including:

   (a) Wastewater with a closed cup flash point of less than 140°F (60°C) using the test methods specified in 40 CFR 261.21. and measured at the point of indirect discharge to the Authority Sewerage System, or at such other place as the Authority determines; or

   (b) any Pollutant which causes an exceedence of 10% of the lower explosive limit as measured by an explosimeter at the point of discharge to the sewer or at any point within the Sewer.

(5) Any noxious or malodorous liquid, gas, or solid or any other pollutant which either singly or by interaction with any other Waste causes or contributes to the creation of a public nuisance, makes it dangerous for personnel or equipment to enter the Sewer for purposes of maintenance, repair, inspection, sampling, or any other similar activity, or which results in the presence of toxic gases, vapors, or fumes within the Authority Sewerage System or Municipal Sewer in a quantity that may cause acute worker health and safety problems.

(6) Any water or Wastewater with a pH lower than 5.5 or higher than 10.5. or with any corrosive or injurious property which may cause damage or be hazardous to the Sewer, the Sewerage System, or the Treatment System, or to any person.

If a Person continuously measures the pH of its wastewater by a properly located, installed, calibrated. maintained, and operated pH measurement system, the pH of the wastewater shall be maintained as required by the Authority, except excursions from the range are permitted subject to the following limitations:

(a) The total time during which the pH values are outside the range of required pH values shall not exceed seven hours in any calendar month;

(b) No individual excursion from the range of required pH values shall exceed 60 minutes; and

(c) The excursion may not be below a pH of 5.0 or above a pH of 12.0.

For purposes of 360 CMR 10.023(6), an excursion is an unintentional and temporary incident in which the pH value of discharged wastewater is outside the range required by the Authority. The Authority, may, by permit or order, reduce the permissible excursion times or eliminate the right to an excursion, as it deems appropriate, based on the treatment system, flow, sewer system needs, and discharge history of the Person.

(7) Any water or Wastewater, not otherwise governed by 360 CMR 10.000. containing pollutants at levels which may adversely affect the Authority's ability to process and/or dispose of its Wastewater Residuals in an environmentally sound and economic manner in accordance with applicable state and federal requirements.

(8) Any solid or viscous substance in a amount or size which obstructs or may obstruct the flow in any Sewer, or which causes or may cause an interference, including but not limited to, sand, mud, metal, glass, wood, plastics, improperly Shredded Garbage, rubber, latex, lime or other slurries, grease, animal guts, or tissues, bones, hair, hides or fleshings, entrails, feathers, ashes, cinders, stone or marble dust, straw, shavings, grass clippings, rags, spent grains, spent hops, tar, asphalt residues, remains from refining or processing fuel or lubrication oil, or glass grinding or polishing Wastes.

(9) Any liquid or vapor with a temperature higher than 180°F (82°C), unless the Authority approves an alternative temperature limit; however, in no case may any Person discharge heat in such quantity that it causes or may cause the temperature at the Authority's Sewage Treatment Facility to exceed 104°F (40°C).

(10) Waters or Wastes containing fats, wax, oil, and grease, not specifically prohibited in 360 CMR s. 10.023(3), in excess of 300 mg/l (based on the materials recovered in the applicable EPA approved procedure, unless otherwise authorized or by the Authority and EPA), or containing any substance which may solidify or become viscous at temperatures between 32°F (0°C) and 180°F (82°C). Waters or Wastes containing such substances, excluding normal household Waste, shall exclude all visible floating oils, fats and greases. The use of chemical, biological or physical means to bypass or to release fats, wax, oil and grease into the sewer is prohibited. If a person is unable to comply with the 300 mg/l requirement after treatment, the Authority may increase the limit on a case by case basis if the Authority and appropriate Municipality are satisfied that such increase will not contribute to nuisance conditions or an adverse impact on the Sewerage System, Receiving Waters, or the Authority's Wastewater Residuals program. The Authority may apply a monetary charge to any such increase in the limit to recover the costs it reasonably expects to incur as a result of the increase.

(11) Waste or Wastewater discharged through a Bypass, unless such discharge through the Bypass was approved in advance by the Authority, or the discharge through the Bypass is allowed by 40 CFR 403.17 and the Person using the Bypass provided to the Authority the notices required by 40 CFR 403.17.

(12) Any radioactive Waste or isotope with a half-life or concentration in excess of any limit established by federal or state law.

(13) Any Sludge.

(14) Any substance, including dye water or any vegetable tanning solution, which causes turbidity or discoloration such that the color of the wastewater at the Authority Sewage Treatment Facility changes noticeably.

(15) Any Sludge.

(16) Any Hazardous Waste, or any Wastewater which results from the treatment of Hazardous Waste, and is discharged to the Authority Sewerage System by dedicated pipe, truck, rail or by other method.

(17) Septage containing Hazardous Waste, Septage from haulers other than those permitted under 360 CMR 10.000. or Septage discharged at a location not designated as a Septage discharge location in the Municipal Permit issued by the Authority to the Municipality where the discharge took place.

(18) Any substance containing pathogenic organisms in such as quantities as determined by local, state and/or federal law as hazardous to the public health or the environment, including but not limited to any "Infectious or Physically Dangerous Medical or Biological Waste" as defined and identified by the Massachusetts Department of Public Health in its regulations entitled "Storage and Disposal of Infectious or Physically Dangerous Medical or Biological Waste, State Sanitary Code Chapter VII" at 105 CMR 480.010. and whose disposal via the municipal Sewerage System or via a septic system is prohibited by 105 CMR 480.200.

(19) Any filter backwash not specifically authorized to be discharged by a permit issued to the discharger by the Authority; any filter backwash that is not treated to meet the limits and prohibitions of 360 CMR 10.000; or, any filter backwash which causes or contributes to a violation of 360 CMR 10.021 through 10.025.

(20) Any trucked or hauled pollutants except at discharge points designated by the Authority in a permit issued by the Authority for the discharge.

(21) Wastes or Wastewater from outside the Authority Sewerage District, unless the wastes or wastewater is discharged pursuant to the Authority policy for sewer connections serving property partially located in a non-Authority community.

10.024: Specific Discharge Limitations/Local Limits

(1) Any discharge of the following materials is prohibited:

(a) Mercury

(b) Polychlorinated Biphenyls (PCBs);

(c) Pesticides, including, but not limited to, Dieldrin, Chlordane, 1,1,1-Tricloro-2.2-bis(p-chlorophenyl)-ethane (4-4 DDT), Demetan, Endosulfan I, Endosulfan II, Endrin, Guthion, Heptachlor, Malathion, Methoxychlor, Mirex Parathion, Acrolein, Aldrin, Tetrachlorachlorodiphenylethane (TDE), 1.1-Dichloro-2.2-bis(p-chlorophenyl)ethane (DDE), Hexachloro-cyclohexane, Lindane, Benzene-cis-hexachloride and benzene-trans-hexachloride (BHC), Hexachlorocyclopentadiene, and Toxaphene.

(2) No Person shall discharge, or cause or allow to be discharged, directly or indirectly into the Authority Sewerage System waters or Waste containing concentrations of the following materials in excess of the following values:

Material	Daily Maximum Limit mg/l Metropolitan Sewerage Service Area
Antimony (total)	10.0
Arsenic (total)	0.5
Boron (total)	20.0
Cadmium (total)	0.1
Chlorinated Naphthalenes	0.8
Chromium (hexavalent) 0.1	
Chromium (total)	1.0
Copper (total)	1.5
Cyanide (total)	0.5
Fluoranthene	1.5
Hexachlorobutadiene	3.0
Lead (total)	0.2
Nickel (total)	1.0
Pentachlorophenol	0.05
Phenol	5.0
Phenolic Compounds (as defined herein)	0.5
Selenium (total)	5.0
Silver (total)	2.0
Toxic Organics Each Toxic Organic not elsewhere limited in 360 CMR 10.000	1.0
Total Toxic Organics	5.0
Zinc (total)	1.0

APPENDIX I

Memoranda and Correspondence

MASCO

MEDICAL ACADEMIC AND SCIENTIFIC COMMUNITY ORGANIZATION, INC.

February 4, 1994

Mr. Kip McClelland
Vice President, Facilities Planning
Deaconess Hospital
185 Pilgrim Road
Boston, MA 02215

RE: DEIR Certificate EOEA #8776/Deaconess Hospital

Dear Mr. McClelland:

In response to your request for information relating to Deaconess Hospital's final PIR/EIR, I offer the following background information.

Demand Management

Deaconess has the most agressive MBTA pass subsidy program in the area, offering a 40% subsidy. In addition, it is one of the first institutions to institute a vanpool subsidy program, also at a 40% subsidy. The hospital is also one of the first institutions to commit to the concept of locating employee parking in locations remote from the LMA.

The Hospital is an active member of CommuteWorks, the LMA's Transportation Management Association (TMA), a service provided by MASCO. Programs provided through this service include: free parking for vanpools, auxiliary parking for employees who rideshare but need to use their cars up to five times per month; annual transportation fairs and other efforts to market alternatives to the automobile for commuting; membership in the Boston Transportation Management Council (BTMC); a full service Transportation Center where MBTA tokens and visitor passes are available as well as where commuting information is disseminated; vanpool and carpool matching services, and new vanpool creation initiatives. As an example of the latter, we recently received State funding to boost our area-wide vanpool formation program, by removing some of the barriers that we believe slow the vanpool process. Through these services to create and promote alternatives to driving to the area, we have been able to maintain a stable transit share in the LMA over the last ten years, while at the same time the city-wide transit share has declined.

375 Longwood Avenue, Boston, Massachusetts 02215-5328 617 632-2310 FAX: 617 632-2759
MEMBER INSTITUTIONS • Beth Israel Hospital Boston • Brigham and Women's Hospital • Children's Hospital • Dana-Farber Cancer Institute • Emmanuel College • Harvard University (Medical School, School of Dental Medicine, and School of Public Health) • Joslin Diabetes Center • Massachusetts College of Pharmacy and Allied Health Sciences • New England Deaconess Hospital • Simmons College • Temple Israel • Wheelock College • Winsor School

Infrastructure Planning

As you know, MASCO is conducting a variety of long-range planning efforts, on behalf of its member institutions, including development planning, energy planning (chilled water and electricity in particular); and transportation planning. Deaconess Hospital is one of the larger institutions funding these efforts by the MASCO Area Planning Department.

As an example of long-range infrastructue planning in transportation, which appears to be of particular concern to EOEA, several initiatives are relevant to the Deaconess Hospital certificate. First, we recognize the long-term limitations to the transit system serving the institutions in the Longwood Medical and Academic Area, and the need for circumferential transit service. In response, we have formed a group of over 35 large employers in the circumferential corridor, called Circumferential Transit Employers Coalition, to educate private sector businesses and public agencies on the need for accelerated transit planning to serve the economic development needs of the corridor's institutions and businesses. We have also chaired a Working Group of the Greater Boston Chamber of Commerce's Transportation Committee focussing on this issue. We are in the process of collecting information on private transit operations in the circumferential corridor, to identify if there are elements of a private network to build upon while public agencies conduct and complete their feasibility and environmental studies. We would be happy to brief the Executive Office of Environmental Affairs on the need for circumferential service improvements and the need for interagency communication within the Administration on this important infrastructure improvement.

We are also in the process of completing a Long-Range Transit Study which will identify additional opportunities in the five to twenty year timeframe to improve both private and public transit services to the LMA. A number of new shuttle and fixed route service opportunities are being reviewed in the study. In addition, we have recently bid out all employee shuttle operations operated either by MASCO's subsidiary MetroBus or by the institutions themselves (including Deaconess), to identify if opportunities exist to consolidate and improve service efficiency.

I would be happy to provide you with additional information on these and other infrastructure planning efforts we are conducting for the Longwood Medical and Academic Area.

Sincerely,

Sarah J. Hamilton

Sarah J. Hamilton
Director, Area Planning and Development

cc: Mitchell Fischman, HMM Associates
Trudy Coxe, Secretary of Executive Office of Environmental Affairs, c/o Bill Gage

ASSESSING DEPARTMENT
Boston City Hall, Room 301, Boston, MA 02201

December 16, 1993

Mr. Roger Perry
Senior Vice President
New England Deaconess Hospital
185 Pilgrim Road
Boston, MA 02215

Dear Mr. Perry:

Thank you for meeting with Jim Rose and myself today. I am encouraged by our agreement in principle regarding a payment in lieu of tax ("PILOT") agreement relative to the Deaconess' planned research facility. In this period of fiscal uncertainty for health institutions and municipal government alike, I appreciate your commitment to the PILOT process. Your commitment is especially commendable given your description to us of the hospital's budget cuts in recent years.

When I have gone over the figures regarding cost, use and square footage, I will contact you regarding more specific details of the PILOT agreement. I look forward to meeting with you again soon.

Sincerely,

Thomas A. McGarey
Director of Tax Policy

enclosure

cc: James Rose, Esq., Assessing Department
David Passafaro, McDermott, O'Neill
Beverley Johnson, Director of Planning, BRA

Ronald W. Rakow, Commissioner
Thomas M. Menino, Mayor

APPENDIX J

Draft Section 61 Format

APPENDIX J - DRAFT SECTION 61 FORMAT

Project Name:	New England Deaconess Hospital Research Facility
Proponent:	New England Deaconess Hospital
EOEA No.	8776
Project Location:	169-171 Pilgrim Road, Boston, MA

1.0 INTRODUCTION

The Project proponent has summarized and identified below the highlights of mitigation measures which have been committed to by the proponent and others. The proponent has met with the Boston Redevelopment Authority, Boston Transportation Department and Boston Parks and Recreation Department to ensure that mitigation was adequately identified and addressed within the Draft Project Impact Report/Draft Environmental Impact Report (DPIR/DEIR), and the Final Project Impact Report/Final Environmental Impact Report (FPIR/FEIR) including the timing of mitigation and responsibility for mitigation.

2.0 SUMMARY OF PROJECT

The Research Facility project (the Project) will be located at 169-171 Pilgrim Road on the campus of New England Deaconess Hospital, a not-for-profit tertiary level (specializing in highly complex patient care) teaching and research hospital in Boston's Longwood Medical Area. New England Deaconess Hospital provides state-of-the-art medical care and is one of the leading centers of medical research in the country. It employs over 3,000 people and occupies approximately 1.2 million gross square feet of building and parking area.

The Project consists of an 11-story building containing approximately 295,000 gross square feet, and will be located on the existing site of the Hospital's Maintenance Building at the corner of Pilgrim Road and Crossover Street and extending to the site of the Hospital's temporary buildings along Autumn Street. Plans for the Project include the demolition of the Maintenance Building and temporary structures on the site. The maintenance operation will be relocated to the basement of the Deaconess Building, and the day-care facility will be relocated to the Hospital-owned building at 21 Autumn Street.

The Project will be connected to the abutting Deaconess Building, and will include a bridge connecting the facility to the Pilgrim Road Garage, as well as a bridge connecting the garage to the Kennedy Building. Cooling towers for the Project will be located on top of a portion of the adjacent Pilgrim Road Garage as part of the Project. The Project will also include minor infill additions to the

abutting Deaconess Building which are necessary to coherently relate and connect this building to the Research Facility. Truck loading and service access are incorporated into the Project with access from Autumn Street. Two truck loading docks and a dumpster dock will be in an enclosed area on the first floor of the Project.

A new open space will be created as part of the Project on a site adjacent to 21 Autumn Street. This site, currently occupied by the temporary MRI building which will be demolished after completion of the Hospital's new Clinical Facility, will be turned into an open space for both passive and active recreational use to serve the needs of the Hospital. Access for non-Hospital use by the public will be provided from the Riverway. The creation of this permanent open space will increase Riverway Park, and will serve to draw the open space of the Park into the Hospital campus.

The benefits to the City from the Project are significant. In addition to the strengthening of New England Deaconess Hospital's research capabilities, the Project will add 75 new permanent jobs over a period of several years and approximately 300 construction jobs over a 2½-year period. The Hospital will make linkage payments in accordance with Articles 26A and 26B of the Boston Zoning Code and will continue to provide substantial funds for AIDS and other critical health care programs in the City of Boston and Metropolitan area.

The Hospital recognizes its responsibility to continue to provide traffic and parking management programs, and mitigation plans and incentives to reduce traffic congestion on campus and within the Longwood Medical Area (LMA). The Hospital, in close coordination with the Medical Academic and Scientific Community Organization (MASCO), has adopted a comprehensive program to reduce the amount of traffic by promoting aggressive transportation policies. These demand management measures include transit subsidies, educational programs, ride sharing, improved pedestrian and bicycle facilities, off-site parking, flexible work hours and other parking disincentives including a strong parking policy establishing that, except for medical staff, second-shift nurses, and senior management, new employees will not be given spaces in on-campus and LMA garages.

3.0 SUMMARY OF AGENCY PERMITS AND/OR FUNDING REQUIRED

Following is a list of the anticipated local, state, and Federal permits required for the Project. (Please note that each permit listed will be filed unless further analysis shows that such permit or action is not required. Additional permits may be needed as the building design proceeds further.)

Agency	**Permit or Action**
FEDERAL	
Environmental Protection Agency	Pre-Asbestos Removal Notice NPDES Permit for Dewatering Discharge NPDES Stormwater Permit
STATE	
Executive Office of Environmental Affairs/MEPA Unit	MEPA Certificate of Compliance Environmental Notification Form Environmental Impact Report
Department of Environmental Protection:	
- Division of Air Quality Control	Air Plans Approval (for Emergency Generator) Pre-Demolition Notice Pre-Asbestos Removal Notice Pre-Construction Notice
- Division of Water Supply	Cross Connection Permit
Massachusetts Water Resources Authority	Sewer Connection/Extension Permit Sewer Use Discharge Permit
Department of Labor and Industries	Asbestos Removal Permit
LOCAL	
Boston Redevelopment Authority	Article 31 Development Review Institutional Zoning District Proposal Institutional Master Plan Approval Development Impact Project Plan and Agreement Cooperation Agreement Boston Residents Construction Employment Plan First Source Agreement with EDIC/Office of Jobs and Community Services
Boston Zoning Commission	Establishment of New England Deaconess Hospital Institutional District

Agency	Permit or Action
Boston Transportation Department	Transportation Access Plan Agreement Construction Management Plan
Boston Water & Sewer Commission	Water & Sewer Tie-In Approval Discharge Permit for Dewatering
Boston Inspectional Services Department	Demolition Permit Earth Removal Permit Building Permit
Boston Air Pollution Control Commission	Compliance with Construction Noise Regulations
Boston Civic Design Commission	Approval of Schematic Design Plans
Boston Parks and Recreation Commission	Approval for Construction within 100 feet of a city park
Boston Department of Public Works/ Public Improvements Commission	Easement for Street/Sidewalk Alteration Street Occupancy Permit
Boston Licensing Board	Storage of Flammables and Chemicals

4.0 SUMMARY OF ENVIRONMENTAL EFFECTS

4.1 Transportation

The transportation effects of the Project are modest. The Project is, for the most part, a consolidation and relocation of existing Hospital research activities resulting in a minimal increase in overall peak-hour person trips to the Hospital. No additional Deaconess Hospital parking will be constructed on the Campus or within the LMA.

Construction of the Project will not lead to a decrease in parking spaces to serve construction workers. These workers will be required to either park off-campus and be shuttled to the construction site or arrive by public transportation. The Hospital will make available its off-site parking and shuttle bus service.

4.2 Pedestrian Level Winds

A qualitative assessment of pedestrian level winds was conducted to determine the effect of adding the Project to existing conditions, which include the soon to be completed Hospital Clinical Facility and Joslin Research and Clinical Facility expansion. No pedestrian area in or near the site appears to have winds that exceed the BRA effective gust guideline wind speed of 31 mph more than once in 100 hours either for existing or build conditions. All

pedestrian level winds are within Melbourne Categories 3, 4, or 5. No pedestrian area has winds in Melbourne Category 2. The winds at all entrances appear to be acceptable with the Project in place, thereby allowing pedestrian ways to remain suitable for their intended use.

4.3 Shadow

The major areas impacted by shadows created by the Project are portions of Autumn Street and Crossover Street. Under current conditions these areas are often already in shadows from existing buildings. Joslin Park, an important nearby public open space, is not expected to be impacted at all by Project shadows.

Riverway Park will only be minimally affected by new shadows between 9:00 AM and 12:00 Noon during the winter solstice and autumnal equinox. The vegetation in the park is comprised of hardy species, the dominant species being red oaks and beech trees. During the season and time period of the additional shading, the plants are in their dormant stage and are not expected to be adversely affected by the new shadow from the Project.

In addition, shadows from the cooling towers occupying a portion of the rooftop of the Pilgrim Road Garage will slightly increase the existing shadows on the Longwood Avenue facade and roof of the 375 Longwood Avenue building during the winter solstice and the vernal equinox.

4.4 Daylight

The daylight analysis reveals that the Project will result in daylight obstruction values typical of developed areas in general, and the LMA in particular. While the Project will lead to increased daylight obstruction over existing conditions, the increases are not expected to impact pedestrian use in the area.

4.5 Solar Glare

Materials used for the Project will be compatible with the materials used for surrounding buildings. A combination of brick, granite, and glass will be the primary materials, similar to other buildings along the west side of Pilgrim Road. Because of the use of these materials, the Project is not anticipated to have solar glare impacts on the surrounding buildings, pedestrian areas or roadways.

4.6 Air Quality

An air quality analysis was conducted to evaluate mobile source emissions and related carbon monoxide (CO) concentrations in the area of the Project. This microscale analysis concentrated on the sensitive receptors around the most congested intersections near the Project, which were compared to ambient air quality standards established by the Federal Clean Air Act and the Commonwealth of Massachusetts.

The results of the microscale analysis demonstrated that ambient air quality standards for CO will be maintained in the future following construction of the Project. Because of the Hospital's parking management policy which will restrict on-campus parking associated with the Research Facility, the Project will not affect future traffic volumes or air quality.

Laboratory venting of exhaust and fume hoods will be at roof level to provide sufficient dilution and to direct emissions away from pedestrians. Although the Project's laboratory space has not been entirely defined, typical emissions include trace amounts of organic solvents including alcohols. These trace amounts will be below limits established by the Department of Environmental Protection, Division of Air Quality Control Regulations, under 310 CMR 7.02. Because of the relatively small quantities of chemicals used in a research laboratory and the intermittent use of fume hoods, most laboratory ventilation will not generally require special filtration or scrubbing.

4.7 Geotechnical

The construction of the below-grade levels of the Project will result in some ground movements. Construction procedures proposed will, however, control ground movements to within acceptable limits.

Adjacent structures and utilities are supported on spread footings, mats, piles, or caissons which bear on or in the marine deposits or glacial till. These structures may undergo minor movements as a result of ground movements associated with the anticipated below-grade construction.

The construction of the Project may require temporary dewatering to facilitate excavation and foundation construction in-the-dry. This dewatering would occur within the site and only required during construction of below-grade areas. Therefore, the impact to area groundwater levels should be negligible.

4.8 Solid and Hazardous Waste

Based on the Phase 1 limited environmental site assessment for the Project site conducted in September and October of 1991, it was concluded that, within the limits of the analytical program, there was no apparent evidence of groundwater contamination or soil contamination above regulated levels.

During the demolition phase approximately 240 to 360 cubic yards per day of demolition waste, consisting of concrete, masonry, wood, steel, roofing materials, interior partitioning, piping, wiring, and flooring materials will be removed. Upon Project occupancy, the facility will generate solid waste, biohazardous waste, radioactive waste and hazardous chemical waste. All waste will be disposed of on a regular basis and in compliance with applicable regulations.

4.9 Water Quality and Resources

The Project is outside of the 100-year flood plain. In addition, the Muddy River is more than 400 feet away from the site and outside the 100-foot discretionary buffer zone associated with wetland resources. In addition, the site is currently fully built up or paved with existing buildings. As a result, the Project will not result in changes to stormwater runoff volumes or quality.

No chemical or biological waste will be discharged into the sewer system, except for trace amounts. As a permitted sewer user under the Hospital's campus permit, the Project will be subject to, and will comply with, stringent MWRA regulations on wastewater discharge quality which includes regulating trace pollutants from the Project.

4.10 Noise

The Hospital has made a significant commitment to noise control in the design of the Project. Noise emitted from each source was modeled at sensitive receptor points. The results indicate that the Project will comply with the Boston Noise Ordinance criteria at all modeled locations.

4.11 Construction Impacts

The construction period for the Project is expected to last approximately 30 months. Typical construction hours will be from 7:00 AM to 3:30 PM Monday through Friday.

The proposed staging plan will be designed to isolate the construction while providing safe access for pedestrians and automobiles during normal day-to-day activity and emergencies.

Construction noise will comply with the City of Boston regulations. The impact of the construction noise is limited because the noise will be temporary and will occur during the day time.

A minimal dewatering effort is anticipated to complete the excavation in the dry. This dewatering would occur within the site during below-grade construction, therefore the impact to area groundwater levels should be negligible.

To reduce vehicle trips to and from the construction site, no construction worker parking will be permitted at the site during Project construction, and all workers will be strongly encouraged to use public transportation. The Hospital will also make available its off-site parking and shuttle bus service to construction workers. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the Project site each day.

4.12 Rodent Control

Based on discussions with the City's Inspectional Services Department, there are no known rodent problems in the Longwood Medical Area.

4.13 Historic Resources

Based on a review of Massachusetts Historical Commission (MHC) files, there is one historic resource listed on the National Register of Historic Places located within an one-eighth mile radius of the site: Olmsted Park which includes the Riverway (or Riverway Park) and the Muddy River.

A review of the Boston Landmarks Commission files led to identification of the Hospital's Palmer Memorial Building and the Deaconess Building (the original hospital) as being potential historic resources on the Hospital's campus.

Based on an analysis of the Project's design as it may impact these historic resources, it was determined that the Project's height, scale and massing are consistent with surrounding structures, and that building materials to be used will be sensitive to the original Deaconess Building, Palmer Memorial Building and other nearby structures.

Based on additional research conducted at MHC files, there are no known archaeological resources within one-half mile of the site. The Project is, therefore, not expected to impact any known archaeological resources.

4.14 Infrastructure

Water demand for the Project is estimated to average approximately 58,000 gallons per day (gpd). This estimate is based on water consumption records and water use rates at similar medical and laboratory research facilities. The peak flow rate for the Project is estimated to be 190 gallons per minute (gpm) based on a peaking factor of 3. Based on recent hydrant test data for the Project vicinity, sufficient water system capacity is available.

5.0 SUMMARY OF PROPOSED MITIGATION

5.1 Transportation Mitigation

The transportation mitigation described below forms the basis for a Transportation Access Plan (TAP) and TAP Agreement which the Hospital will enter into with the City of Boston Transportation Department (BTD). The Agreement is currently being negotiated with BTD and is nearing completion.

5.1.1 Traffic Mitigation

5.1.1.1 Commuter Mobility Program

To accommodate the new person-trips generated by the Project, the Hospital will continue and augment its existing program of parking management, demand reduction and commuter mobility measures, which together will constitute a Commuter Mobility Program. Such Commuter Mobility Program will be administered in cooperation with the efforts of the Longwood Medical Area Transportation Management Organization (CommuteWorks), a joint venture of the institutions in the Longwood Medical Area (LMA), operated under the auspices of MASCO.

The Hospital endorses the aims of CommuteWorks to accommodate all patients in and visitors to the LMA in reasonably priced off-street parking in close proximity to the patients/ visitors' destinations; to encourage the use of transit and ridesharing by all employees in the LMA; to minimize Hospital-generated traffic impacts in the Fenway/Kenmore/Mission Hill area through such means as allocation and pricing of employee parking; and to improve traffic flow through the LMA by such measures as signage, striping, signalization, removal of on-street parking spaces, and other generally recognized engineering solutions.

The goals of the Commuter Mobility Program will be:

(i) To maximize the use of public transportation and ridesharing by persons working at the Hospital.

(ii) To make available to all workers in the LMA improved access to mass transit and ridesharing services, through cooperative efforts with other institutions in the LMA.

(iii) To foster, through cooperative efforts with local and state government, improvements in transportation facilities, programs and services.

The specific objective of the Commuter Mobility Program shall be to achieve a rate of 20% for daytime medical personnel and 50% for all other staff commuting to work by means other than singly-occupied automobile.

Implementing Party: New England Deaconess Hospital

Regulatory Agency: City of Boston Transportation Department (via TAP Agreement)

Implementation Timing: Ongoing

5.1.2 Parking

In order to promote the objectives stated above, the following measures will be taken in the management of Hospital parking.

5.1.2.1 Employee Parking Rates

Rates for employee parking will be structured so as to encourage employees to use economical commuting options available to them which make driving alone less attractive than ridesharing or taking public transportation. To further this policy, the Hospital will, beginning in October 1994:

(i) At all facilities owned, leased or operated by the Hospital within the LMA, charge at least as much for employee parking as the average charged by other hospitals for similar employee parking at other LMA facilities.

(ii) Charge significantly more for parking located on or near the Project site than for remote parking.

5.1.2.2 Patient/Visitor Parking Rates

Parking will be made available to visitors and patients on a priority basis in facilities closest to the Project site.

5.1.2.3 Vanpool Parking Spaces

A reserved parking space in a preferred, convenient location will be guaranteed for any vanpool which includes three or more employees of the Hospital at a discount of 50% from the rate usually charged at that location.

5.1.2.4 Parking Allocation

(i) Assignment of parking spaces will take into consideration such criteria as distance of employee's home from the Project site and from MBTA subway or commuter rail lines and hours of work.

(ii) The Hospital will assign off-site parking in a manner consistent with the goal of minimizing traffic within and through the LMA, Mission Hill, and Fenway/Kenmore areas.

(iii) The Hospital will clearly advise employees at least annually of all criteria used in assigning off-site parking.

5.1.2.5 LMA Transportation Strategy Committee

The Hospital will continue to play an active role in the LMA transportation strategy committee, with the aim of acting collectively in setting parking policies to achieve area-wide transportation goals, through such measures as reduced parking subsidies and joint management of off-site parking facilities.

5.1.2.6 Satellite Parking

The Hospital will work with LMA institutions, BTD, and regional agencies to develop satellite parking facilities and shuttle services for the use of persons employed in the LMA. If and when such satellite facilities are developed, the Hospital, in cooperation with the manager of such facilities, will charge significantly less for parking at satellite locations than for parking located within the LMA.

Implementing Party:	New England Deaconess Hospital (except in combination with MASCO for 5.1.2.3, 5.1.2.5, and 5.1.2.6)

Regulatory Agency: City of Boston Transportation Department (via TAP Agreement)

Implementation Timing: Ongoing

5.1.3 Ridesharing

The Hospital shall promote ridesharing in the form of carpools and vanpools, by persons employed both on the Project site and elsewhere in the LMA. To that end, the Hospital shall:

(a) Provide computerized carpool/vanpool matching programs in coordination with the LMA Transportation Management Organization (TMO), utilizing surveys of Hospital's employees and computer-based matching techniques.

(b) Participate in joint ridesharing programs with other institutions within the LMA.

(c) Provide in a monthly newsletter promotional materials to inform employees and aid them in ridesharing.

(d) No less than once every year, co-sponsor in cooperation with Commute Works and other LMA institutions, a "Transportation Day" during which transit alternatives will be promoted and opportunities afforded to enlist employees in ridesharing programs, including those at all off-campus facilities.

(e) Provide promotional materials to the Hospital's employees, and promote carpooling and vanpooling by the installation of transportation information literature racks in common areas at both on-campus and off-campus locations, articles in the Hospital's newsletters, and other appropriate means.

(f) Continue to convey information about transit and ridesharing alternatives to new employees through the employee orientation process.

(g) Support the development of CommuteWorks' carpool/vanpool matching and MetroBus transit services.

(h) Encourage use of carpools through economic incentives.

(i) Work with MASCO to investigate the feasibility of discounting parking rates at remote facilities for carpools.

(j) Support development of and participate in a "guaranteed ride home" program for carpoolers and vanpoolers.

Implementing Party: New England Deaconess Hospital (in combination with MASCO and other LMA institutions)

Regulatory Agency: City of Boston Transportation Department (via TAP Agreement)

Implementation Timing: Ongoing

5.1.4 Transit

(a) The Hospital will provide an on-site location for transit pass sales.

(b) The Hospital will continue its program of subsidizing the cost of MBTA transit passes, which subsidy is currently 40% for employees and staff of the Hospital.

(c) The Hospital will continue to require that employees who purchase subsidized MBTA passes surrender their commuter parking permits.

(d) The Hospital will coordinate with CommuteWorks, the Massachusetts Bay Transportation Authority (MBTA), BTD, and other agencies and employers to encourage the MBTA to institutes programs facilitating the bulk purchase of tokens or tickets through means other than monthly passes. If a financially feasible program is instituted, and can be managed with reasonable efforts by the Hospital, the Hospital will participate.

Implementing Party: New England Deaconess Hospital (in combination with MASCO)

Regulatory Agency: City of Boston Transportation Department (via TAP Agreement)

Implementation Timing: Ongoing

5.1.5 Pedestrians and Bicyclists

(a) Pedestrian maps and signage will be installed which provide clear information regarding location of hospital facilities and pedestrian routes.

(b) The Hospital will provide ample, secure, protected, convenient, and free bicycle parking.

(c) The Hospital will provided access to locker space and shower facilities to all employees and staff of Hospital who commute to work by bicycle.

Implementing Party:	New England Deaconess Hospital (in combination with MASCO)
Regulatory Agency:	City of Boston Transportation Department (via TAP Agreement)
Implementation Timing:	Ongoing

5.1.6 Construction Management Plan

The Hospital shall prepare a Construction Management Plan which details measures to insure the maintenance of existing levels of service on adjacent roadways during the construction of the Project and to minimize disruption at neighboring residential sites, and shall submit said plan to the City of Boston Transportation Department (BTD) for approval. Such approval shall be obtained prior to the Hospital obtaining any building permit for the Project from the City of Boston Inspectional Services Department (ISD). It is understood by the Hospital that the development of a Construction Management Plan is a pre-condition to the issuance of a building permit for the Project by ISD.

The Construction Management Plan shall include, but not be limited to, measures dealing with: proposed street occupancies; use of tower cranes; sidewalk occupancies or obstruction of pedestrian flow; materials staging; transportation and parking for construction workers; hours of construction work; materials delivery.

Implementing Party:	New England Deaconess Hospital (in combination with MASCO)
Regulatory Agency:	City of Boston Transportation Department (via TAP Agreement)
Implementation Timing:	Prior to Construction Commencement

5.1.7 Transportation Coordinator

The Hospital shall designate a transportation coordinator who shall cooperate with the BTD in the execution and monitoring of the obligations set forth in the TAP Agreement.

Implementing Party:	New England Deaconess Hospital (in combination with MASCO)
Regulatory Agency:	City of Boston Transportation Department (via TAP Agreement)
Implementation Timing:	Completed

5.1.8 Regional Transit Improvements

MASCO has been participating in the ongoing analysis of the feasibility of constructing a circumferential transit system linking the existing major transit lines outside downtown Boston. As presently envisioned, it would provide direct service between Boston, Brookline, Cambridge, Somerville, and Chelsea. The effect of this ring of transit service would be to support existing employment centers and to help create new ones, and to provide attractive transit options for residents of the inner neighborhoods and communities, as well as the suburbs, for their daily commute to work.

The circumferential transit system would be a major benefit to the LMA, to its employees, patients and neighbors. In recognition of this importance, (MASCO) has founded the Circumferential Transit Employers Coalition (CTEC) to support planning efforts for this system. While the full system is many years away, MASCO's current circumferential planning efforts in the Medical Area are focused on improvements to transit services and other shuttle and high occupancy vehicle (HOV) services that can be accomplished in the short term. In the interim, these improvements would help achieve some of the benefits anticipated by better transit service to this important employment area in Boston.

MASCO is also encouraging the timely funding of the studies needed to evaluate the feasibility of the circumferential service as part of the Commonwealth's "Transportation Plan for the Boston Region" and the "Program for Mass Transit" so that this Project can be in line to secure funding in the Federal authorizations expected in 1996. These studies would be used to establish the costs and benefits status of the service, evaluate preferred alignments and types of vehicles, and identify a phased implementation approach.

Implementing Party: MBTA (in cooperation with MASCO)

Regulatory Agency: Executive Office of Transportation and Construction

Implementation Timing: Unknown

5.2 Pedestrian Level Winds

No further mitigation is necessary. All pedestrian level winds associated with the Project are within Melbourne Categories 3, 4 or 5, which are considered acceptable by the BRA. The winds at all building entrances also appear to be acceptable with the Project in place. Thus, pedestrian ways are considered suitable for walking at a minimum. The setback of the entrance to the Project along Pilgrim Road provides mitigation of winds at that location. No pedestrian area at or near the site is expected to have winds that exceed the BRA effective gust guideline wind speed of 31 mph more than once in 100 hours either for existing or build conditions.

5.3 Shadow

The Project will add some minimal new shadows on Riverway Park during the morning hours in the winter and autumn. The Hospital has discussed this minimal impact with the Boston Landmarks Commission and the Parks and Recreation Department and no additional mitigation has been requested.

The Hospital has created, and will continue to create, additional open space areas throughout its campus. The Hospital has contributed to the Joslin Park and is creating a new open space at the site of the temporary MRI building (which will soon be demolished). This proposed open space has been the subject of numerous meetings with the Parks and Recreation Department. The Hospital will continue to meet with the Parks and Recreation Department and the BRA in developing this open space. The open space will be installed by the Hospital prior to occupancy of the Research Facility. The Hospital will continue to own and maintain the open space.

5.4 Daylight

The Hospital will consider mitigation to daylight obstruction along Pilgrim Road in connection with future design and construction of any new structure on the site of the existing Deaconess Building. The Hospital has agreed to give consideration to setbacks and/or use of materials that would maximize the transmission of daylight onto Pilgrim Road in conjunction with any new structure on the site of the existing Deaconess Building, subject to BRA review

and that of BLC which lists this building in its files as a potential historic resource.

5.5 Solar Glare

The Hospital's use of materials such as brick and granite act as mitigation for solar glare impacts. Because of the use of these materials, the Project is not anticipated to have solar glare impacts on the surrounding buildings, pedestrian areas or roadways.

5.6 Air Quality

The Hospital's parking management policy, which restricts on-campus parking associated with the Project, acts as mitigation for the air quality CO analysis. To reduce emissions from the proposed research laboratories, all laboratory exhausts will be vented through the roof of the Project. All hood exhaust ducts will be equipped with fans which will force air vertically with a speed sufficient to provide dilution. By venting from the roof level, all exhaust gasses will be directed away from pedestrian areas.

5.7 Geotechnical Impacts

Provisions are being incorporated into the Project's design and construction procedures to limit potential adverse impacts to adjacent structures, and therefore, the impact to adjacent structures is anticipated to be minimal. The following measures will also be taken:

- The design team will conduct studies, prepare specifications, and review contractors' submittals for conformance to the Project contract documents.

- Performance criteria will be established for the lateral earth support system with respect to movements, and the construction sequence of the below-grade portion will be controlled by specific requirements in the project specifications. The contractor will be required to modify his methods and take all necessary steps during the work to protect nearby buildings and structures.

- All contractor designs and procedures will be reviewed by the Project design team prior to implementation.

- As part of the contractor's submittal, the contractor will be required to submit contingency plans for remedial measures in the event that unacceptable performance occurs. These measures will also be reviewed by the design team prior to construction.

- Geotechnical instrumentation will be installed and monitored to observe the performance of the excavation, adjacent buildings and structures, and area groundwater levels.

- The design team will provide full-time, on-site monitoring of the contractor's activities and monitoring of geotechnical instrumentation during the below-grade portion of the work. This will provide for monitoring of the contractor's compliance with project specifications, and will facilitate notification and correction of any on-site problems.

Area groundwater levels will be monitored throughout construction, and if any adverse effects are observed, remedial action will be taken and construction methods changed to mitigate further construction-related draw down.

5.8 Solid and Hazardous Waste

All waste will be handled and disposed of in accordance with applicable regulations.

Prior to demolition or construction, the Hospital will hire a qualified professional to determine if there are hazardous materials such as asbestos in the existing permanent site building. If hazardous materials are identified, the Hospital will have them removed by a licensed contractor prior to any demolition. Contaminated waste will be handled and disposed of by a licensed contractor in an approved landfill in compliance with applicable local, state, and federal regulations.

Construction waste will be disposed of in an approved landfill under the authority of the contractor. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring.

After discussions with the Commonwealth of Massachusetts Department of Environmental Projection (DEP) and with private demolition contractors, it is currently envisioned that the following practices and reuse/recycling of demolition materials will be considered:

- Demolition will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.

- Brick, concrete and asphalt will be evaluated for its reprocessing opportunities to be used as fill or reused as a construction material.
- Wood containing glues, paints or other chemical preservatives cannot be recycled and will be separated for disposal at an approved facility. All "clean" wood may either be transported to a wood-chipping facility or reused as timber. If chipped, wood chips could then be sold to local landscaping companies. Otherwise, plankings may be sold to construction companies for construction or restoration projects.
- Much of the steel and iron may be recycled. Copper piping and copper wire may be recycled as well. Recycling would consist of melting down and refabricating new products. These materials may be sold to one or more of a number of scrap metal companies in the area.

5.9 Water Quality and Resources

In order to protect water quality, stormwater in the adjacent Pilgrim Road Garage will be discharged to the storm drain system after passing through an oil/water separator.

To minimize sewage generation, the Project will meet all applicable code requirements for the installation of low-flow fixtures.

Chemical and biological waste from laboratories will be collected into appropriate containers and properly disposed of in compliance with all applicable regulations. The laboratory drainage system will be equipped with automatic chemical treatment system to control pH levels of laboratory waste entering the sewer system. In addition, any photoprocessing will be subject to a centralized silver recovery system. Treatment system specifications will be fully detailed in subsequent filings with the MWRA.

5.10 Noise

The Hospital has made a significant commitment to noise control in the design of the Project. Specific noise controls used will be selected in the final design to meet the Boston standards. Mitigation measures to be incorporated in the building design to control noise from Project sources may include but are not limited to the following:

- Installation of Noise Control Louvers on some or all building openings.
- Installation of stack silencers on the Hood Fan Exhaust Stacks.

- Installation of silencing material in the ductwork and plenums associated with the building ventilation system.
- Optimization of the arrangement of the various pieces of equipment on the mechanical floors to reduce the resulting outside sound levels.
- Application of sound absorptive material around the cooling tower area.
- Installation of fans designed to operate with lower noise levels.
- Installation of add-on attenuator equipment to specific pieces of equipment.

5.11 Construction

A Construction Management Plan (CMP) will be submitted to the Boston Transportation Department (BTD) for approval prior to the start of Project construction. The CMP includes specific mitigation measures and staging plans to minimize impacts to the abutters. The designated construction contractor will be bound by the CMP.

The proposed staging plan will be designed to isolate the construction while providing safe access for pedestrians and automobiles during normal day-to-day activity and emergencies. A detailed construction plan will be included in the Traffic Maintenance Plan in compliance with the City's Construction Management Program.

At all areas where pedestrians will be in the vicinity of the construction site, construction fencing will be erected together with the staging for a brow for overhead protection. As described above, public access to the Pilgrim Road Garage, if necessary, may be temporarily moved away from the staging area on Crossover Street to allow uninterrupted use of the garage and to separate the entrance/exit from construction activity. In addition, pedestrian crossovers and appropriate signs and barricades will be installed at a sufficient distance to ensure safe pedestrian routing around the work site.

Storage of demolition debris will not be allowed on-site. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring.

Prior to demolition, the existing building will be inspected for hazardous materials such as asbestos. If hazardous materials are discovered, prior to any disturbance by demolition, they will be removed and disposed of by a licensed

contractor in full compliance with all local, state, and federal regulations and procedures.

To reduce emissions of fugitive dust and minimize impacts on the local environment, a number of strictly enforced mitigation measures will be adhered to. These measures are listed below:

- Wetting agents will be used regularly to control and suppress dust that may come from the demolition materials and/or soils.
- All trucks used for transportation of excavated material and demolition debris will be fully covered.
- No storage of demolition debris will be allowed on-site.
- Actual construction practices will be monitored to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized and to ensure that any emissions of dust are negligible.
- Streets and sidewalks will be cleaned periodically to minimize dust accumulations.

The Hospital is not only the sponsor of the Project but also its nearest neighbor. As a result, every reasonable effort will be made to minimize the noise impact of construction activities. Mitigation measures will include:

- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers.
- Muffling enclosures on continuously running equipment, such as air compressors and welding generators.
- Replacing specific construction operations and techniques by less noisy ones - e.g., using welding instead of riveting and mixing concrete off-site instead of on-site.
- Selecting the quietest of alternate items of equipment - e.g., electric instead of diesel-powered equipment, hydraulic tools instead of pneumatic impact tools.
- Scheduling equipment operations to keep average levels low, to synchronize noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels.
- Turning off idling equipment.

- Locating noisy equipment as far as possible from sensitive areas.
- Routing of construction traffic away from hospital access roads, where possible.

Geotechnical instrumentation will be installed and monitored to observe the performance of the excavation, adjacent buildings and structures, and area groundwater levels. Area groundwater levels will be monitored throughout construction, and if any adverse effects are observed, remedial action will be taken and construction methods changed to mitigate further construction-related draw down.

5.12 Historic Resources

Through the appropriate use of materials, height and massing, the Project has been designed to ensure its compatibility with, and minimize its impacts on, nearby historic resources, including Olmsted Park. Any additional shading on Olmsted Park will be minimal and limited to mornings during the fall and winter when the dominant species are in their dormant growth stage. Therefore, no additional mitigation is necessary to mitigate additional shadow on the historic park resource.

5.13 Infrastructure

The City's public water supply system will be protected by reduced pressure principle back flow preventers (RPZ) to be installed on the water services to the facility. All back flow preventers will be installed and permitted according to Massachusetts DEP Cross Connection Plan Approval (Permit BRP WS 09) requirements.

The Research Facility will meet all applicable code requirements. The Project's design will incorporate provisions for water conservation, such as:

- 1.6 gallons per flush toilets;
- 1.0 gallons per flush urinals;
- 0.5 gpm electronic faucets, where practical; and
- Flow restrictors for other plumbing fixtures.

Use of low flow fixtures can reduce the projected water consumption and resultant sewage generation by up to 20%.

In addition, an induced draft cooling tower will be used instead of a "once through system." As a result, consumptive water use will be limited to makeup for evaporative, drift and blowdown losses. To further minimize water use,

cooling tower use will be restricted to periods where the outside ambient temperature exceeds approximately 55°F. In addition, when the temperature is low enough, draft fans in the cooling tower will not be used in order to further reduce evaporative and drift losses and consumptive water use. In effect, at moderate temperatures, the cooling tower will act as a heat sink without the evaporative losses and makeup requirements normally associated with typical cooling tower operation.

It is anticipated that the chiller plant will be operated to meet only peak requirements during a 6-month period, roughly April through September. The cooling tower system use will be restricted during the early spring, late fall, and winter months, and blowdown discharge to the sewer would not occur.

Chemical and biological waste will be collected and disposed of in compliance with applicable regulations. Liquid entering into the sanitary drainage system will meet all standards for effluent discharges. Laboratory drainage systems will be equipped with an automatic chemical treatment system to control the pH level of laboratory waste. Treatment system specifications will be fully detailed subsequent filings with the MWRA.

The design and construction of all proposed service connections and system modifications will be performed to the standards of BWSC and will be subject to its review and approval.

Existing sewer connections and service to the area will be maintained during construction of the Project. If interruptions are necessary, they will be coordinated with the BWSC.

With construction of the Project, the quality of storm water runoff should improve due to the installation of controls in the Pilgrim Road parking garage areas. Clean rain water will be drained from the roof of the building. Storm water from the parking garage will be routed through a sand interceptor and then through an oil separator prior to being discharged into the BWSC gravity storm drainage system.

Energy conservation measures will be an integral part of the building design. Some of the measures to be incorporated into the building design are described below:

- The building's indoor design temperatures for general office comfort will be:
  - Summer - 78 degrees Fahrenheit DB, 50% maximum relative humidity
  - Winter - 72 degrees Fahrenheit DB, 30% maximum humidity

- Indoor design temperatures for the laboratories will be:
  - Summer - 76 degrees Fahrenheit DB, 50% relative humidity
  - Winter - 72 degrees Fahrenheit DB, 50% controlled humidity

- Air Economizer Cycle - The air conditioning system will be equipped with energy saving dry bulb economizer control. This will enable use of 100% outdoor air for cooling when the outdoor conditions are favorable.

- High efficiency motors will be provided for motors operating 150 hours or more.

- Electronic energy saving ballasts with energy efficient lamps will be used for the general lighting system. These ballasts will not contain PCBs.

6.0 AGENCY ACTION

Pursuant to MGL c. 30, sec. 61 and 301 CMR 11.10(3) and (4), agencies that act on permits for a project for which an EIR has been prepared under MEPA shall determine the impact on the environment of such project, make a finding describing such impact, if any, and make a finding that all feasible means and measures have been utilized to avoid or minimize impacts on the environment.

7.0 AGENCY FINDING

[Agency Name], acting on a permit request for the Project does find that the impacts on the environment from the Project are as described in the Draft and Final EIRs and summarized above, and does find that the proponent has taken all feasible means and measures to avoid or minimize the impacts on the environment.

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